RAILROAD GAZETTE

FRIDAY, JULY 30.

The Merits of American Railroad Construction.

[From the annual address of Vice-President O. Chanute before the Twelfth Annual Convention of the American Society of Civil Engineers.]

Quick to appreciate the consequences of the invention of the locomotive, or rather its marvelous improvement by Stephenson in 1829, and the peculiar adaptability of the railroad to our country as a means of settling up new lands and of cheapening the interchange of products, Americans began building railways very soon after the English, and pushed their construction with unexampled vigor.

From advanced sheets kindly furnished by Mr. H. V. Poor, we have the following table of railway construction in the United States in each year since 1830:

Statement showing the Number of Miles of Railroad constructed in the United States from 1830 *to* 1879 (*Dec.* 31).

Year.	Miles in operation.	Year.	Miles in operation.
1830	23	1871	60,283
1835	1,098	1872	66,171
1840	2,818	1873	70,278
1845	4,634	1874	72,383
1850	9,821	1875	74,096
1855	18,374	1876	76,808
1860	30,635	1877	79,147
1865	35,085	1878	81,841
1870	52,914	1879	86,121

That this does not compare unfavorably with what has been accomplished in other countries appears from the following table of the population and railways of the world at the close of 1875, which I also borrow from Poor's excellent manual for 1876-1877:

Railroads of the world.—Statement showing the aggregate of the railroads in each country and the relation thereof to area and population at the close of the year 1875:

Countries and States.	Railroads in operation—Miles.	Railroad miles to Area, sq. m.	Railroad miles to Inhabitants.
United States of America	74,658	40.5	586.5
Dominion of Canada	4,488	152.9	1,101.1
United States of Mexico	327	2,538.0	24,873.8
Total North America	79,473	57.3	707.3
Central America and West Indies	611	247.1	4,245.1
South America	3,826	1,673.2	5,786.1
Total America	83,910	132.2	973.4
Europe	88,007	44.2	3,481.5
Asia	7,087	260.5	36,028.4
Africa	1,538	572.6	9,172.7
Australasia	2,148	1,101.5	1,040.5
Grand total	182,690	110.1	3,612.7
World in gross	182,690	285.0	7,614.2

Since 1875 some 10,268 miles have been built in Europe, and about 5,000 miles in other parts of the world, outside of the United States, chiefly in Australia and India, so that the world's railways probably stand to-day as follows:

Europe	98,275 miles, or	47 per cent.
United States	86,121 miles, or	41 per cent.
Rest of the world	25,000 miles, or	12 per cent.
Total	209,396	

Thus our 50,000,000 of inhabitants have furnished themselves with 86,000 miles of railway, while the 306,000,000 of Europe have 98,000 miles, and the 1,050,000,000 of the rest of the world possess but 25,000 miles.

There were in Great Britain, on the 1st of January, 1879, 17,333 miles of railway, on which there were about 32,000 miles of track, 12,969 locomotives, 418,322 passenger and freight cars, owned by the companies, in addition to some owned by private parties, and over which trains ran 222,376,114 miles, and conveyed 565,000,000 passengers.

The capital account of the English roads was 698,545,154 pounds sterling, or $3,380,958,545, thus giving an average cost of $195,059 per mile of road.

The average cost per mile in several other countries about the year 1875, was as follows:

France	1873	$152,500
Belgium	1873	111,342
Germany	1875	100,570
Austria-Hungary	1875	105,847
All Europe	1875	120,960
United States	1879	58,915

Thus our railroads have cost less than half as much per mile as those of Europe.

Going back one year, for purposes of comparison, on the 1st of January, 1879, we had in the United States 81,841 miles of railroad, on which there were 101,660 miles of track, or enough to encircle the globe three and a half times. There ran upon these roads 16,445 locomotives, 11,683 passenger cars, 4,413 baggage, mail and express cars, 423,013 freight cars.

The capital invested was $4,772,297,349, or $58,915 per mile of railroad; the gross earnings were $490,103,351, or $6,209.52 per mile; the working expenses were 61.79 per cent. of earnings, or $302,528,184—say $3,887.10 per mile of railroad; and the net earnings were $187,575,167—say $2,322.42 per mile, or 3.932 per cent. on the nominal capital.

While the greater cheapness of our American railroads is in some measure due to the comparative smoothness of much of our country, and to the absence of heavy land damages, much more is due to the methods of construction applied to the railroads themselves, to the cheap and efficient expedients which our engineers have introduced, and especially to the character of the rolling stock which we have adopted.

The early locomotives obtained an adhesion and tractile power equal to 1-14 of the weight upon their driving wheels. I believe that in other countries 1-7 of the weight is even now considered a standard and satisfactory performance, while our American locomotives, including the latest type, the Consolidation engine, of 50 tons weight, regularly work up to 1-5 in winter and 1-4.5 in Summer, of the weight upon their drivers, with occasional performances up to ⅓, and even less.

That is to say, if a locomotive has 88,000 pounds weight upon eight driving-wheels, and obtains an adhesion of one-seventh, it will pull a train equal in resistance to the lifting of a weight of 12,571 pounds; while, if it works up to 1-4.5 in adhesion, it would pull 19,555 pounds, or 55 per cent. more under the same circumstances.

Not only do our locomotives pull greater trains than do European locomotives, in proportion to their own weight, but they run more miles in the course of the year, Stürmur's statistics for 1875 showing that the average train mileage for locomotives (not the engine mileage, but the mileage of passenger and freight trains, divided by the whole number of locomotives), was for all Europe, 15,720 miles per year, and for the United States 21,900 per annum.

This has been accomplished by a series of improvements in construction, which have brought our locomotives materially to differ from their European prototypes, and which fairly entitle us to speak of them as American in design.

These improvements chiefly consist: First, in the substitution for a rigidly attached pair of leading wheels, of a four-wheeled truck pivoted at its centre, or of a swing-beam pair of wheels, under the front end, thus allowing lateral play, and giving the engine great ease in passing curves; and, also, second, in the connecting together of the driving-wheels and axles with one or more pairs of equalizing levers, to distribute the weight among them, and thus keep its apportionment nearly constant, while the wheels are free to follow and adapt themselves to all the irregularities and deflections of the track.

These two features, together with careful counterbalancing and easy springs, have not only given our locomotives great ease and steadiness of motion, even over rough tracks, but have made them more efficient over good tracks. Moreover, outside cylinders and accessibility of parts, give great facility for repairs, and notwithstanding the higher prices which we pay in this country for labor and materials, our American locomotives are cheaper to build and to maintain than those of foreign makers.

This efficiency in the motive power has enabled us to cheapen greatly the construction of our roads, by locating them with sharper curves and steeper grades than would otherwise be possible, as is evident by the comparison of cost per mile already given.

There are, however, a number of features of European locomotive practice which it would be well for us to study, and possibly to imitate, such as improved methods of boiler construction, economy of fuel and better proportion of heating surfaces.

By calling attention to these, the editors of the *Railroad Gazette*, from whom many of the statistics hereafter to be given have been obtained, are doing the country, as well as engineers, a good service.

We have applied to railroad cars similar features of flexibility and diminished resistance, by placing under each end a pivoted truck of four wheels, instead of a single pair of wheels rigidly attached. This arrangement enables us not only to shorten the wheel-base but to lengthen the car. It passes with ease around curves even as short as 100 feet in radius, and improved design and workmanship, together with our tight journal boxes, lubricated with mineral oils, have reduced the resistance of cars so much that recent experiments made upon several of our roads indicate a rolling friction of only four or five pounds per ton, on a level straight line at low speed, or only one-half of the coefficient as given in all engineering note-books.

Until recently the proportion of live or paying weight carried by our freight cars did not so well compare with their own dead weight as in European freight cars. The latter, with four wheels, generally weigh 13,000 pounds, and carry 20,000 pounds when fully loaded. It took us a long while to realize that having started with eight wheels under our cars, we could, by increasing their weight in some degree, at the same time increase their carrying capacity in still greater ratio, and so obtain better proportions. The more recent freight cars, however, those of the Pennsylvania Railroad, carry 40,000 pounds, and they weigh about 21,000 or 22,000 pounds if built as box cars, and 19,000 pounds if constructed as coal cars; the latter especially being exceedingly well designed.

And since I have mentioned the name of the Pennsylvania Railroad, allow me to call the attention of the members of this society to the study and imitation of that splendid work, which, if not most perfect, is certainly one of the most perfect railroads in the world. The expenditure of money and thought and care which has been going on upon it for many years has reduced the cost of transportation over it to less than obtains on any other trunk line which crosses the Alleghany range.

There are two features of European practice which, perhaps, it would be well for us to introduce in our freight cars. The first is the substitution of iron for the wooden sills which now form their foundation. The second is the larger use of platform and gondola cars for carrying freight. Even dry goods and groceries, covered with tarpaulins, are carried on flat cars in England, where it rains much oftener than it does here; and the ease and cheapness with which these cars are loaded and unloaded (with proper appliances) in comparison with our box cars promise a notable economy of station labor.

We also continue to handle all goods at our depots with hand labor. At all stations where traffic is large we might substitute machinery to advantage for many classes of freight. This offers a fine field of invention and adaptation for engineers or mechanics.

While paying much attention to cheapness in the transportation of freight, and obtaining results, as we shall see hereafter, which compare favorably with those obtained elsewhere, we have not been unmindful of the safety of passengers. Our safety platforms and power brakes, together with the extended use of the telegraph, have made traveling in this country generally as safe as it is abroad, notwithstanding the lighter character of our roads, and the fact that most of these are single tracked. We have, however, much to do, particularly in introducing signals to control the movement of trains. This is done almost universally in Europe, and scarcely at all in this country. Not only is traffic comparatively light on many roads, but with us labor has been so expensive that we have hesitated in adopting the block signals, which require the attendance of numerous men. American inventors have turned their attention instead to automatic signals, of which there are several systems which promise well. It is to be hoped that they will be so improved, perfected and cheapened as to lead to their adoption.

Although our railroads were originally cheaply and imperfectly built, and although we pay in this country a great deal more for labor and material than the prices which obtain in Europe, we have nevertheless reduced the cost of transportation to as low figures, if not lower, than any which obtain on the other side of the ocean. The grindstone of competition between the railroads themselves, and with canal, river and lake routes, has reduced freight transportation to such a fine point that our railroad managers have devised new and cheaper methods of doing their work, have learned to operate their roads with a smaller proportion of men, and have accomplished results which astonished even themselves.

It is difficult to make comparisons of rates and costs between different railways, because scarcely any two of them are placed under precisely the same circumstances, but it is known that the lowest rates in England are given on mineral traffic. This is understood to be about ⅞ of a cent a ton a mile, while the regular rate from Chicago to New York upon domestic produce (grain, flour, provisions, lard, &c.), is now ⅝ of a cent a ton a mile, and in times of sharp competition has been .2 of a cent a ton a mile.

The English railroads do not report their earnings and expenses per ton per mile, but the German Union railroads (which include about 27,000 miles in Germany, Austria and Hungary, as well as some in Belgium and Holland) do, as well as the Belgian state railroads. In the table which follows, the freight revenue, expenses and profits, in cents per ton per mile, of these are given for such years as were accessible; and for purposes of comparison, similar figures are given for the railroads in such American States as report the necessary data, as well as for a number of individual American railroads, of which the revenue and expense, in cents per ton per mile, have been published in the *Railroad Gazette*:

Railways.	Revenue.	Expense.	Profit.
German R. R. Union, 1875	2.100	1.194	0.906
" " 1876	2.070	1.154	0.916
" " 1877	2.050	1.094	0.956
Belgian State R. R., 1877	1.431	0.856	0.575
State of Ohio, 1876	1.117	0.801	0.316
" Michigan, 1878	1.053	0.632	0.421
" Illinois, 1879	1.028	0.617	0.411
" Massachusetts, 1879	1.838	1.066	0.772
" New York, 1877	1.059	0.781	0.278
" " 1878	0.999	0.690	0.309
N. Y. Central, 1879	0.796	0.541	0.255
Erie, 1879	0.780	0.564	0.219
Pennsylvania, 1879	0.824	0.480	0.344
Boston & Albany, 1879	1.073	0.622	0.451
Pitts., Cin. & St. L., 1879	0.720	0.420	0.300
Col., Chi. & Ind. Cent., 1879	0.700	0.590	0.110
Vandalia Line, 1879	0.931	0.715	0.216
Michigan Central, 1879	0.692	0.407	0.285
Lake Shore, 1879	0.642	0.398	0.244
Clev., Col., Cin. & Ind., 1879	0.697	0.575	0.122
Chicago & Alton, 1879	1.054	0.558	0.496
Illinois Central, 1879	1.520	0.640	0.880
Chi., Mil. & St. P., 1879	1.720	0.941	0.779

Thus, it will be noted that the profit alone on freight is more on the railroads of the German Union than the gross receipts of the three American trunk lines, and although it is true that the passenger rates are materially lower in Germany than they are in the United States, yet if the traffic of the New York roads had been carried at the German rates for 1877, the profits alone would have been $52,500,000 more than it was; if carried at the Belgian rates, both for passengers and freight, the profit of the New York roads for 1878 would have been more by $13,000,000; that is to say, $12,000,000 less upon passengers, because of the lower Belgian rate, and $25,000,000 more on freight than it was, and these sums may fairly be said to have been saved to the public by the economical operation of our roads.

In fact, sharp competition and the incessant demands of the public have, for the past few years, diminished rates so rapidly that, as a whole, our railroads are now paying smaller returns upon the entire capital invested in them than those of most foreign countries, and the people of the United States since 1873 had their property transported for less than it was reasonably worth. It has been shown, in giving the net earnings of all our railroads, that for the year ending January 1, 1879, they earned 3.93 per cent. upon the total capital invested in them, while the railroads of Europe in 1875 earned the following returns upon their capital:

	Per Cent.		Per Cent.
Great Britain	4.4	Austria-Hungary	3.9
France	5.1	Russia	4.0
Germany	5.1	All Europe	4.3

It may be claimed that the capital of our American roads exceeds their real cost, in consequence of what has been called the watering of the stock of some of them; but it is believed that much larger sums than those so added to the stocks of the successful roads have been wiped out and lost in the reorganization of the unsuccessful roads, so that this return of 3.93 per cent. upon the entire capital of all our roads seems an insufficient return in a country where money brings 6 to 12 per cent. interest. If, therefore, railroads are to continue to grow (and as only about one-half our territory is as yet provided with them, we shall doubtless have many more miles to build as population increases), it may be necessary that the reduction of rates shall be arrested for a while at least. They have been reduced not less than 56 per cent. in the State of New York, and about 45 per cent. in the State of Massachusetts, between 1868 and 1877, while in the German Empire, during the same period, they were only reduced 22½ per cent.

As Americans, we have no reason to be dissatisfied with the results accomplished thus far. We have succeeded in so organizing labor that, while we pay it from 30 to 50 per cent. more than in Europe, we build our railways for about one-half the cost, and we transport freight over them, with the aid of our machinery, at materially cheaper rates than those which obtain in other parts of the world.

Not only should engineers endeavor still further to improve and to cheapen construction, and especially the operation of our railroads, but they should now find in foreign countries, as yet unprovided with them, fields in which they can introduce the features of economy which we have developed.

At home we shall doubtless continue to build new lines in the same cheap, light style which we have made so efficient, and we shall largely extend the narrow guage in sparsely settled districts. We should, however, so locate our roads as to secure the best possible line and gradients, even if, after they are adopted, we do not bring the embankments to the full height, in order to save present expense. As population and traffic increase we can, if the works are well planned for that purpose, rebuild, add to and improve them, so as to diminish the cost of transportation, to the best economy.

Coolness.

Cars are generally built of wood and iron, but an exchange tells of a "car consisting of a score or two of ladies of the Episcopal church." A good many master car-builders would like to see that car, especially if the ladies were young and good looking.

Courts are no regarders of times and seasons, but even for a court the following strikes one as rather cool when it appears, as it did in the New York papers, on a day when the thermometer was 98° in the shade: "Superintendent Walling was to-day served with a peremptory order not to interfere with the use of the snow plows on the Twenty-third Street Railroad."

An emigrant woman lost her baby out of a Kansas railroad car window the other day. It was in her arms and she went to sleep, and when she awoke it was gone, and could not be found in the car. Several stations after this, the conductor received a telegram saying that a baby had been picked up about twenty miles back by the construction train. The child was perfectly unhurt, and lay crying by one side of the track. It was the emigrant's child, and came along to her on the next train.

The above paragraph, or something similar, goes the rounds every year about this time. Generally it is a handsome young girl who falls from the car, which is more interesting than a baby.

Central Pacific Railroad Company's Transfer Boat "Solano."

The *Railroad Gazette* of Jan. 16 of this year contains a description of the line of road constructed by the Central Pacific Company, in order to secure a shorter route from Sacramento to San Francisco. This line involved crossing the straits of Carquinez, which at first it was proposed to bridge, but the difficulties were so great that the idea was finally abandoned, and the company decided to use a steam ferry on which trains are transferred across the straits from Benicia to Port Costa.

The ferry-boat is probably the largest in the world, and its general dimensions will therefore be of interest. They are as follows:

Length over all, 424 ft; length on bottom, 406 ft; height at sides, at centre, 18 ft. 5 in.; at ends, from bottom of boat, 15 ft. 10 in.; moulded beam, 64 ft.; extreme width over guards, 116 ft.; camber, or reverse shear of deck, 2 ft. 6 in. Draught, light, 5 ft.; loaded, 6 ft. 6 in. Registered tonnage, 3,541 31-100 tons.

She has two vertical beam engines: cylinders, 60-in. bore, 11 ft. stroke, built by Harlan & Hollingsworth, at Wilmington, Del. Wheels, 30 ft. diameter, with 24 buckets each, 17 ft. face.

Engines are driven by 8 steel boilers, each 28 ft. long, 7 ft. diameter of shells, containing 143 tubes, 4 in. diameter by 16 ft. long. Total heating surface in 8 boilers, 19,640 square feet; grate surface, 288 square feet, capable of driving engines with 2,000 horse-power each. The boilers are placed in pairs, on the guards, forward and abaft the paddle-boxes, connected with engines, so that one or all may be used at pleasure.

The engines are placed on the centre line of the boat, fore and aft of the centre of boat 8 ft., making distance from centre to centre of shafts 16 ft., and not placed abreast of each other, as in the usual manner. The object of this arrangement is to give room on deck for four tracks—and each wheel being driven by an independent engine, enables the boat to be more easily handled in entering slips.

Among other novelties in her construction are four Pratt trusses, arranged fore and aft, directly under tracks, varied in size to meet the strains upon them. These give longitudinal stiffness, and connect the deck and bottom of the boat, making her in reality a huge floating bridge. In addition there are eleven water-tight transverse bulkheads, dividing the hull in twelve compartments, rendering her absolutely secure from all danger of sinking, besides adding additional stiffness to boat.

There are four balanced rudders at each end of boat, 11½ ft. long by 5½ ft. deep, coupled together and worked by hydraulic steering gear, operated by independent steam engines and pumps. The steering gear is connected also with steering wheels in the ordinary manner—the pilot houses being 40 ft., above deck, affording the helmsman a clear view fore and aft.

There are four bridges running athwartship, and another fore and aft, connecting the pilot houses. Upon the deck are four tracks extending the entire length, with capacity for 48 freight cars with locomotive, or 24 passenger coaches of the largest class.

The aprons connecting the boat with the slips at Benicia and Port Costa are each 100 ft. long, with four tracks, so arranged that freight and passenger trains are run aboard without being uncoupled from the locomotive. The aprons weigh, each, 150 tons, and are worked by a combination of pontoons and counter-weights, by hydraulic power.

In the hold of the boat are commodious quarters for the officers and crew; on deck, rooms for the transaction of railroad business.

—Hon. John P. King, who was succeeded in the presidency of the Georgia Railroad Company by Gen. Alexander two years ago, has just declined a re-election as President of the Atlanta & West Point Company, after serving thirty years in that office. Judge King has been in public life over 50 years, and must be an old man.

Contributions.

The Finlay Spark-Arrester.

LITTLE ROCK, July 22, 1880.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I notice in your issue of May 28, 1880, you illustrate Mr. L. Finlay's improvement in spark-arresting smoke-stacks, and do the designer an unintentional injustice by stating that the larger and heavier sparks can be removed through a suitable opening in the side of stack.

This is an error. There is no opening in the side of stack, and a very important feature in the utility of this stack, is that *it never needs to be cleaned.*

I have seen them taken from engines, worn out by long use, but perfectly clean inside.

The four openings near the bottom of the inside pipe admit a current of steam which accomplishes this. In justice to Mr. Finlay, please make this correction.

E. P. CLARKE.

Calculating the Cost of Transportation.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Probably nothing in connection with the proceedings before the Special Railroad Committee of the New York Assembly caused much greater surprise to the general public and was the subject of stronger criticism, than the manner in which prominent railroad officials disclaimed all ability to tell with precision and unerring accuracy what the exact cost of transportation would be on any particular shipments that they might be called upon to name rates for. Many a merchant, in the full confidence of *his* knowledge of what the goods in his warehouse cost him and at what price *he* could afford to sell any particular lot of merchandise therein contained and make a profit, no doubt considered the acknowledgement of the railroad officials sufficient evidence of their incapacity. Still, Mr. Merchant to the contrary notwithstanding, instead of the admissions of the railroad men concerning their ignorance of the precise cost of transportation being evidence of their unfitness for the responsible positions they hold, it is conclusive proof that they fully appreciate the urgent necessity of close investigation and persistent study of the important interest with which they are identified. Their admissions are not the consequence of indifference or inattention to the duties devolving upon them, but come from their more thorough acquaintance of the complex nature of the question and of the many details directly or indirectly bearing upon the cost of transportation.

The question naturally arises as to why the railroad companies do not keep their accounts in such a manner that the true expenses of doing each year's business could be shown with strict accuracy and completeness of detail, wherefrom could be compiled the cost of carrying each class of freight, if not the cost of carrying each individual shipment. That the clerical work on every road of any magnitude under the present system of accounts is of no inconsiderable amount will need no greater proof than the large number of employés engaged in the different branches of the accounting department. Probably no other business requires as much clerical work in comparison to the entire amount of labor employed as do the railroads.

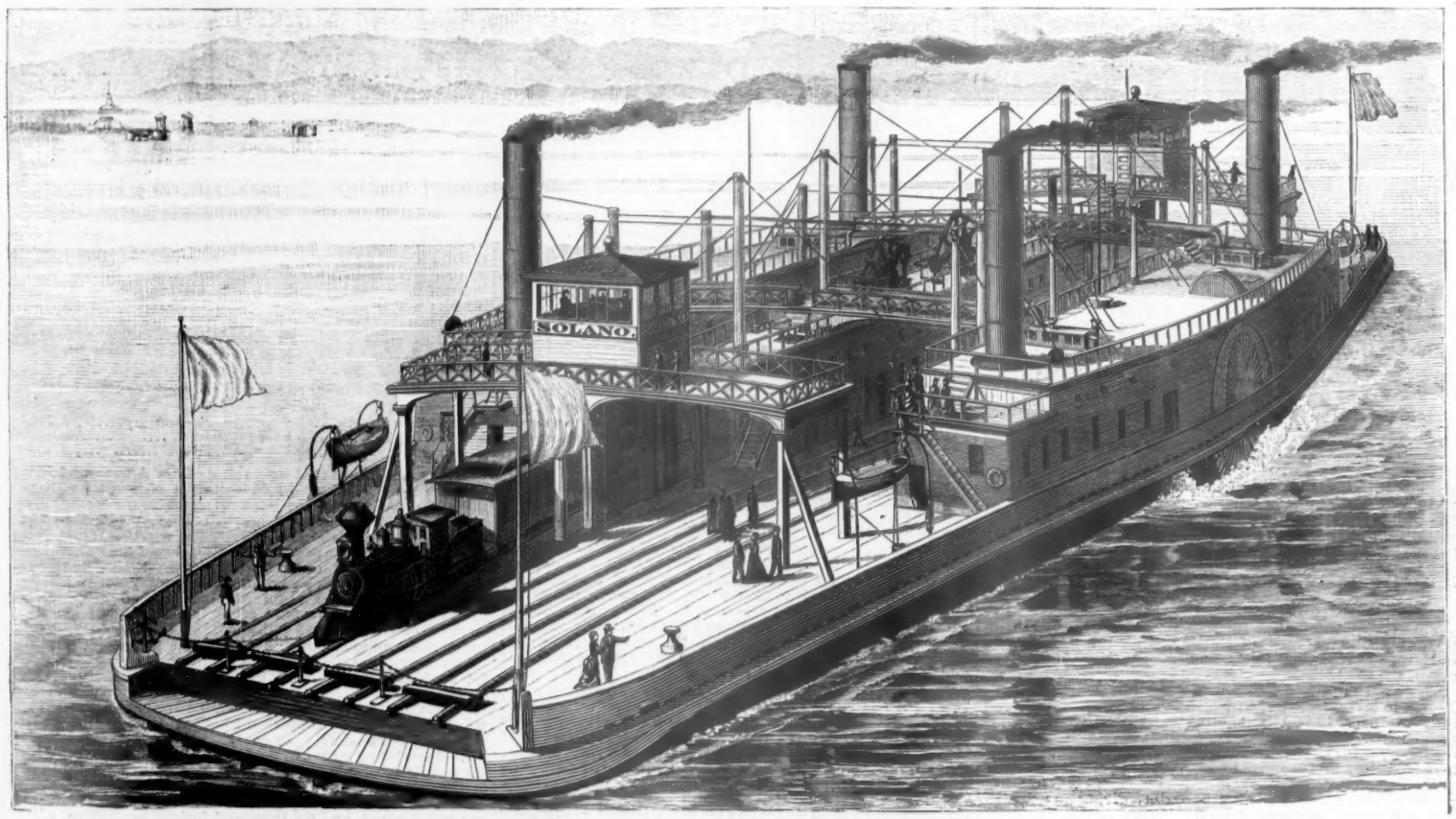
According to the general manner of railroad accounting, the expenses of each year are considered to be the actual amount expended on the road during the year, regardless of the fact that a large portion of this expenditure was undoubtedly caused by the traffic in previous years, or was made in preparation for the demands of future traffic.

It has frequently been suggested that this might be remedied by the opening of a "Renewal Fund" account, or something of that kind, and that all expenses that could not in strict justice be charged directly against the business of the current year should be carried to the "Renewal Fund" account, and the proper proportion of the same be charged against the business of each year that would be benefited by the expenditure. While the suggestion may be an excellent one, and a certain unevenness that now often appears in the operating expenses of many roads for different years might thereby be avoided, the main difficulty here would be that a vast deal of this class of expenditure would have been made necessary by the wear of the traffic of years preceding the expenditure, and, as the accounts for those years would be closed, it would be impossible to charge any portion of this expense against those years' business. Again, if certain expenditure was made, in part to meet the necessities of future traffic, how could it be determined what proportion each year's business bears to the aggregate amount of traffic interested in the expenditure, so that the yearly charge could be made in corresponding ratio. Estimates could be made, undoubtedly, that would approximate closely enough for all practical needs of the railroad companies; still, as far as the exact cost of transportation each year is concerned, they would be no better able to state positively than they now are. Indeed, many argue that, as railroads endeavor usually to keep their road and equipment up to a uniform standard all the while, take one year with another, the annual charge for operating expenses under the present system of accounting is as near what the equitable charge against each year's business would be, if it were possible to devise a system of accounts that would show it. However, this assertion is wide-open to question. If there were uniformity in decay and wear and tear, so that the same amount of repairs were needed every year, then there could be an evenness in the cost of keeping the road up to the standard; but, unfortunately, material does not wear out so evenly that you can calculate just what you can expend each year regularly and keep your road and stock in good order. Then in dull times and with low coffers a road is apt to curtail expenses to the smallest possible figure, and postpone all repairs possible, until a more prosperous season.

That there *is* an unevenness in the annual expenses of roads will be demonstrated by statements that will be presented herewith.

But, assuming that the actual expenditure of each year is properly chargeable against the business of that year, or that by a "Renewal Fund" account, or some other plan devised, the actual expenses are approximated as nearly as possible, we then only know what the gross expense of doing the entire business is. Of course, more or less arbitrarily, the expenses are divided into the many sub-divisions required by the state or that may be desirable to the management.

Then comes the question as to what proportion of the gross expenses is chargeable against the freight traffic and what proportion against the passenger branch of the service. How are we going to distribute the expenses relating



CENTRAL PACIFIC RAILROAD COMPANY'S TRANSFER BOAT SOLANO.

to maintenance of road-bed and track? How much of the cost of renewing iron and ties, the repairing of bridges, buildings, fences and gates, the operating of telegraph line, and of the other expenses of similar nature, are a just debit to freight traffic, and how much against the transportation of passengers? Sometimes, where there is but a light traffic, mixed trains are run, carrying both freight and passengers. In that case, how shall we divide the cost of train service, cost of fuel, wear and tear to engine and cars and incidental expenses? At the less important stations one agent may have charge of both the freight and passenger business; his clerk will sell tickets and bill freight; his men will handle baggage and load freight. On what basis should the division of the expenses of this station be made? On the basis of earnings? The earnings may be greater from the passenger traffic and more work may be done in the freight department. On the basis of labor? While the total amount of labor may be more in the freight service, if it were not for some peculiarity of the passenger business of the station, they might not need so much help. There is the salary of the General Manager, Superintendent, Treasurer, Auditor, Paymaster and numerous other officials not exclusively connected with either branch of the traffic. How can the salaries of these officers and the expenses of their offices be allotted so that neither the freight or passenger traffic will be charged more than its just share? Experts of the entire expenses standing against the freight traffic of the road. Not only should it stand its proportion of the wages of employés and terminal expenses at the receiving station, the cost of hauling to where consigned and its proportion of the wages of the employés and station expenses at point of destination, but it should be debited with with a certain part, infinitesimal though it may be, of the renewal of iron and ties, repairs of bridges, repairs of engines and freight cars, and of all other outlay necessary for keeping the road in good repair. It should pay a minute portion of the salary of all employés directly or indirectly connected with its receipt, transportation or delivery, from the general officers high in authority to the humble track-walker; for upon the strict attention of all these individuals to their respective duties rests its chance of reaching its destination safely. Then there are taxes, contingent expenses and many other items that are in one sense strictly independent of the transportation of any particular shipment or shipments, which must necessarily be included in the aggregate expenses. By what method of computation could those be divided so that each shipment could share therein? Then, again, loss and damage to freight, destruction of property by collisions, derailments, flood or fire. How should these be provided for in calculating the cost of hauling special lots of freight?

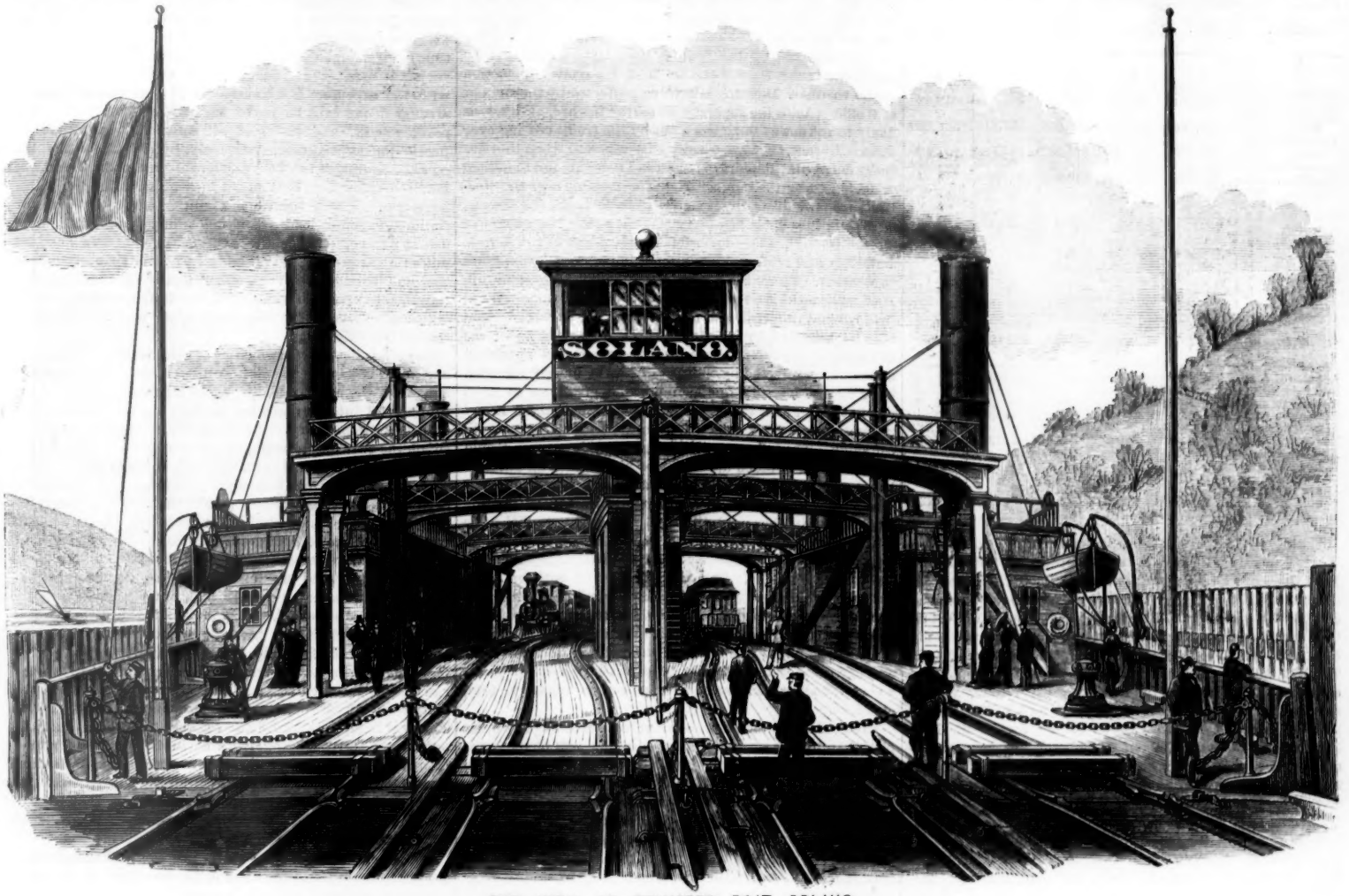
All these are incidental to the operation of railroads and

New York Central & Hudson River.

YEAR.	Tons of freight carried.....	Tons of freight carried one mile.....	Exp's charged ag'st freight traffic.....	Average cost per ton per mile.....
			$	cts.
1874.....	6,114,678	1,391,560,707	13,692,877	0.98
1775.....	6,001,954	1,404,108,029	12,639,004	0.90
1876.....	6,803,680	1,674,447,055	11,905,527	0.71
1877.....	6,351,356	1,619,048,685	11,329,549	0.69
1878.....	7,695,413	2,042,775,132	12,302,533	0.60

Lake Shore & Michigan Southern.

YEAR.	Tons of freight carried.....	Tons of freight carried one mile.....	Exp's charged ag'st freight traffic.....	Average cost per ton per mile.....
			$	cts.
1874.....	5,154,264	1,013,100,943	8,451,745	0.83
1875.....	4,944,807	934,755,069	6,676,841	0.71
1876.....	5,489,108	1,064,841,419	6,587,889	0.62
1877.....	5,642,284	1,113,985,311	6,574,681	0.59
1878.....	5,917,481	1,283,118,977	6,259,086	0.49



END VIEW OF TRANSFER BOAT SOLANO.

have devoted much time and careful and persistent study in endeavoring to decide the comparative cost of running passenger and freight trains; many tests have been made to show what is the relative cost for fuel, wear on rails and strain on equipment in running trains of different weights and at various rates of speed; experiments and calculations have been made, theories and facts have been advanced, and formulæ been presented—all with the object of determining the true percentage for pro-rating certain expenses between the two branches of the service. While the time and study have by no means been wasted, nor the experiments and tests always been of little value, but, on the contrary, have often led the way to a more thorough understanding of many matters, and have frequently suggested methods for a more economical management, they have not succeeded in presenting any rule or rules for determining the proper principle by which to divide the expenses of the road between the two species of traffic.

Thus, even if it were possible to show the actual expenses of each year, and an accurate division of the expenses between freight and passenger traffic were practicable, there would yet be insurmountable difficulties in the way of calculating what would be the cost of carrying individual shipments, be they large or small. That freight traffic consists of a vast number of individual shipments, greatly diversified in character, value and bulk, no one familiar with transportation affairs need be reminded. From the smallest shipment, carried the shortest distance and at the lowest charge permitted by the tariff of the road, to the large shipment of one or two hundred car lots hauled the entire length of the road, each should be charged with a certain portion are part of the expenses that have to be considered in connection with cost of operation. The expense of hauling empty cars is a matter of importance to most roads, and it is natural to inquire to what class of freight this expense should be charged. To the freight last carried in them, or the freight they are next loaded with?

These are all points concerning which no general rule could be established; consequently in calculating the cost of transporting individual shipments, it would be necessary to have a complete knowledge of the minutest details in any way related with the movement of the particular shipment under consideration. So many things being conjectures, it is absolutely impossible to compute, even to estimate, with sufficient accuracy to be of particular value to the general public.

Hence, it would appear that the railroad officials had good reason for having so humble an opinion of their powers on this point, and for maintaining their ability to tell about it only by averages, and that the averages were merely approximations, approaching the true average in the same degree as there is uniformity in their annual expenditure.

Much has been said about the reduction in the cost of transportation that has been made in the last few years; and, basing their arguments on these reductions, many assertions have been made regarding the great degree in which an increase in traffic lessens the general average cost. Before entering upon this, in illustration of the variation in expenses, and also in connection with increased traffic lessening average cost in all expenses, the following abstracts are taken from the New York State Engineer's Reports on Railroads from 1874 to 1878, inclusive. The report for 1879 not being out, that year could not be included.

Boston & Albany.

YEAR.	Tons of freight carried.....	Tons of freight carried one mile.....	Exps charged ag'st freight traffic.....	Average cost per ton per mile.....
			$	Cts.
1874.....	2,668,403	290,672,369	4,176,970	1.44
1875.....	2,439,472	282,309,789	3,103,719	1.09
1876.....	2,451,274	301,624,088	3,121,724	1.03
1877.....	2,691,657	313,822,671	3,408,314	1.09
1878.....	2,642,555	329,708,573	3,251,475	0.99

Now, it is not claimed that these reports are a true showing of the real expenses of these roads for the respective years, or that the amount of expenses therein allotted to the freight traffic is absolutely correct. The expenses reported are the actual expenditures of the year, not including betterments charged to capital account, and the allotment to freight transportation is an arbitrary one. However, they are what the figures on which the arguments and assertions concerning the reduced cost of transportation are based upon. It has been asserted that the difference in price of labor and cost of material in 1874 and 1878 does not account for the great difference between the average cost per ton per mile as shown in the reports for the respective years. That, while there may have been many improvements adopted that have permitted of a more economical operation of the roads, the prime reason for the material reduction in the average cost was the increased volume of traffic. While this may be so to a great extent,

it is to be accepted with some qualifications; but, leaving that question for the present, it will now be taken in consideration how much these claims can be sustained by the published reports. With this object in view, the following statements are introduced, which show how much is allotted to freight traffic under a few of the more important subdivisions of expenses by the roads included in the previous statements and covering the same years:

New York Central & Hudson River.

EXPENSE.	1874.	1875.	1876.	1877.	1878.
	$	$	$	$	$
Repairs of road	1,466,579	1,054,067	747,627	765,675	935,110
Rail renewals	285,403	504,339	96,479	155,854	222,459
Repairs of engines	784,552	631,374	631,986	597,725	662,086
Repairs freight cars	1,565,152	1,856,635	1,423,936	1,281,858	1,256,323
Cost of fuel	1,535,679	1,314,905	1,486,915	1,273,819	1,377,559
Taxes	597,116	619,641	667,438	578,067	637,909
Agents, etc	515,504	416,805	390,486	403,714	708,652
Handling fr'ght	973,552	978,593	999,931	1,088,741	1,110,689
Watchmen and switchmen, etc	514,595	459,092	445,279	411,499	402,654

Lake Shore & Michigan Southern.

EXPENSE.	1874.	1875.	1876.	1877.	1878.
	$	$	$	$	$
Repairs of road	1,203,672	978,617	818,304	854,752	694,256
Rail renewals	779,061	703,709	400,836	451,632	315,530
Repairs of engines	507,306	437,760	388,808	397,216	368,089
Repairs of Frt. cars	697,766	604,541	571,607	545,528	654,429
Cost of fuel	899,231	782,919	719,325	707,709	560,286
Taxes	315,639	335,107	330,053	347,023	341,491
Agents, etc., handling freight, watch and switchmen, etc	1,506,228	595,278	1,126,752	1,158,804	1,145,459

Boston & Albany.

EXPENSE.	1874.	1875.	1876.	1877.	1878.
Repairs of road	$630,744	$514,905	$506,199	$420,994	$381,059
Rail renewals	372,335	98,694	99,072	85,336	52,984
Repairs of engines	383,392	173,515	188,921	240,297	217,922
Repairs of frt. cars	415,925	364,992	348,300	417,255	403,510
Cost of fuel	670,138	491,341	520,689	455,006	414,128
Taxes	238,517	220,241	237,591	231,002	207,757
Agents, etc., handling freight, watch and switchmen, etc	1,206,875	905,174	559,967	649,306	619,650

Taking, first in order, the statements relating to the New York, Central & Hudson River Railroad, we find that in 1874 the tons moved one mile were 1,391,560,707, and the debit to freight traffic for account of repairs of road was $1,466,579; while in 1876 the tons one mile were 1,674,447,055, and the debit to freight for repairs of road was only $747,827; that in 1878 the tons moved one mile were 2,042,755,132, and the allotment to freight traffic for repairs of cars was $1,256,323, and for fuel used $1,377,559, against a charge for the same items in 1876 of $1,423,936 for repairs of freight cars and $1,486,915 for fuel used. Now there was an *increase* of about 20 per cent. in the tonnage-mileage during 1876 over the tonnage-mileage in 1874, yet there was a *decrease* of about 50 per cent. in the expenditure on road-bed, and, while the increase of tonnage-mileage in 1878 over 1876 was nearly 25 per cent., there was a considerable decrease in the repairs of freight cars, and for the fuel used in hauling the freight. It cost $122,466 less to repair engines in 1878 than it did in 1874, and the service performed appears to be about 50 per cent. more. Take the other items of the statement and there will be found a variation in the amounts for the different years without anything like a corresponding variation in the amount of traffic.

Next in order comes the Lake Shore & Michigan Southern Railway, and from the statements of that road we find that with a tonnage movement in 1874 of 1,013,100,943 tons the charge against the same for repairs of road and renewal of rails was $1,982,733, and in 1876 with a tonnage movement of 1,064,841,419, the charge against the freight traffic for the same items was only $1,219,140; that while there was a slight increase in the traffic of 1876 over 1874, the decrease in this one item of expense was in the neighborhood of 40 per cent. Also, in 1876, the repairs of engines engaged in the freight service was $388,808, and in 1878, with an increase of 20 per cent. in service required, the repairs to engines were only $368,089. In 1878 the repairs of road and renewals of rails are placed at $1,009,786, while in 1877, with a traffic over 12½ per cent. less, the charge for account of road repairs and rail renewals are $1,306,384. An examination of the tables regarding the traffic and expenses of the Boston & Albany Railroad will show similar fluctuations in the expenses of that road. Now, while it is not for a moment claimed that the charges under these items are not perfectly legitimate, and that the variations there shown can be prevented under any system of accounts, or that the figures there given as the average cost per ton per mile do not come near the true cost, it is claimed that any argument in favor of the increase of traffic lessening the average cost per ton per mile based solely on the published statements of the railroad companies is apt to be erroneous and misleading. The theory that increased tonnage must *always* reduce the average cost is altogether too sweeping in its nature, and it may be well to investigate into the matter and see what effect an increase of traffic may have upon the cost of transportation under various circumstances. But before leaving the discussion of the published reports, it is simply justice to state that the apparent variation is in a great part the result of the difference in prices for labor and material for the respective years. During the period of time represented by the reports noticed there has been a very decided decrease in the market price of rails, iron and almost all other material that it was necessary to purchase for maintenance of road and equipment; coal has fallen considerably in price, and the cost of labor in all branches of the service has been very materially reduced. The substitution of steel for iron has beyond doubt caused a smaller expenditure for rail renewals—though this would only the more clearly demonstrate that the reduction that has been made in the average cost of transportation during the last five or six years was not altogether produced by the great increase in traffic.

In calculating the influence of increased traffic on average cost of transportation, it will be necessary to consider what expenses are directly influenced by the amount of freight carried and what expenses are in a certain respect but indirectly affected thereby. According to the usual order of subdividing operating expenses, the repairs of road comes first in order. The road-bed itself probably suffers more from the action of the elements than it does from the tonnage passing over the rails. The expenses of the working trains, as far as the ballasting of the road is concerned, should not be charged so much against the traffic of the road as the action of the weather. Ditching is in no way affected by the amount of traffic. As to the superstructure, the ties are, at least, as likely to rot out as to be worn out by the trains passing over them. In fact, they are usually only renewed when they are badly decayed. Repairs to fences and gates are not increased or decreased by the number of trains passing over the line. Rails are probably a direct charge to traffic to the full amount of expenditure made necessary for renewals. The amount of traffic is only partly responsible for the necessary repairs to buildings and bridges; they are not impervious to exposure to weather. There is a natural decay to all things, and railroad equipment is no exception to the general rule. Wood will rot and iron rust, and the decay is accelerated, instead of being retarded, by inaction. This summary of how some of the more important elements of the expense of operating railroads are affected by indirect causes is merely intended to be suggestive. Estimates might be given as to what amount they affect the expenses, but it is questionable if any estimate would be of sufficient accuracy to be of any practical value. The influence that these outside causes would have depends so much upon circumstances, that an estimate based on one combination of circumstances might be very inaccurate if applied in estimating in regard to the expenses of another road differently located. Sufficient be it then that there is a portion of the expenses for maintaining road-bed and equipment that is entirely independent of the amount of traffic. Then any increase of business, without raising the average cost per ton per mile for direct expenses, must necessarily decrease the average cost per ton per mile in reference to the aggregate expenses. Of course, on the other hand, any increase of traffic that *does* raise the average cost per ton per mile for direct expenses will cause a corresponding increase of average cost in regard to total expenses.

Taxes, if levied on an assessed valuation or by any other plan than by the amount of gross earnings, will be the same whether the business be more or less; providing the growing traffic makes necessary no additional outlay for plant or permanent improvement, the assessors do not increase the valuation, for the reason that they think that, owing to its more prosperous condition, the railroad is better able to stand a larger share of the taxes. Honesty compels the admission that this would not be an unprecedented action on the part of the assessors. Unless a road is worked up to its fullest capacity—which is by no means the general rule—there can usually be no inconsiderable growth in the amount of its business before there is any urgent necessity for any increase in the number of its employés, or in the salaries paid them. General superintendence and general office expenses are not increased in the same ratio as the business may be enlarged. If the traffic increases sufficiently to make more labor than can be performed by the existing staff, the additional help obtained is generally of the lower grades. Repairs of engines can be considered as depending almost solely on the amount of traffic and miles run; but with the cars it is somewhat different, as the woodwork will certainly decay whether the cars are used or not, and but a certain portion of the money expended in repairing cars is really influenced by the amount of traffic they carry. That the nature of a road and the peculiarities of its traffic have a vast deal to do with the cost of operating it is almost too evident to need the assertion. Thus if a road has heavy grades, it is evident to the most casual observer that it will cost much more to transport the same amount of freight over it than it would if there were no grades whatever, and that it also would make a material difference in the cost of operation whether the larger proportion of its business was in direction of the up-grade or in the opposite direction. If the preponderance of the traffic were in the direction of the up-grade, any increase of traffic in the opposite direction that would lessen the preponderance would have an effect on the average cost. The hauling of empty cars is quite an item of expense when the larger percentage of the freight is in one direction. We find that the amount of dead weight hauled to one ton of paying freight during the year 1878 was as follows on the three roads that we have heretofore mentioned:

N. Y. C. & H. R. RR.,	2.60	tons	dead	weight	to	1	ton	paying freight.
L. S. & M. S. Ry	2.08	"	"	"	"	1	"	"
B. & A. RR.	2.33	"	"	"	"	1	"	"

The above figures probably include the weights of engines and tenders: but making due allowance for that, it it would appear that even then each road hauled about two tons of dead weight for every ton of paying freight that passed over the road. Or, in other words, it cost twice as much to transport the cars as it did to transport their contents. Hence, any new business that would reduce the proportion of dead weight to paying freight, whether it be by increasing the average load per car or by furnishing a return load for the empty cars, must necessarily reduce the average expense per ton per mile as far as train service is concerned. While cars are standing idle they are earning nothing; it is while they are loaded and in motion that they are producing any revenue; hence despatch in loading and unloading is an element that influences cost of transportation. If the present business does not use the equipment of a road up to its full capacity, any increase of business that could be handled without additional equipment would swell the earnings without a similar increase in expenses. Regularity of traffic also has its bearing on the cost, for if a business is uniform in amount, it would require fewer cars to provide for the transportation of any given amount in a given time than if the business was spasmodic in its nature, at one time requiring the pressing in of every car that can be obtained by any hook or crook, and at another time being completely stagnated and requiring the use of but very few cars. Permanency of the trade has much to do with the expense. If a business is of a permanent nature, arrangements can be made to handle it at the lowest possible cost, and if it is of sufficient magnitude to justify the expenditure, frequently, by a little outlay, the cost of handling it can be considerably reduced. Length of haul is another item that has its bearing on the cost of transportation. Where the same facilities exist, the cost for terminal expenses, loading and unloading, clerical work, etc., are the same, whether the haul be five or five hundred miles; consequently, it will be fair to infer that any means that will increase the average haul will be likely to decrease the average cost. In considering the influence of increased train-loads on cost of transportation, we will take for illustration the following:

Say a road connects two cities of considerable importance and about one hundred and fifty miles apart. The principal amount of the business is near either terminus, and while the commercial interests between the two ends of the road requires the running of a certain number of freight trains between the two cities, owing to the sparsely settled country through which the road runs, there is a considerable distance where the engines are but slightly taxed. Any new traffic between these intermediate points that would create sufficient business to make full train-loads for the entire run would reduce the cost for train service on every shipment carried by those trains. Within certain limits the same principle applies to train mileage. Say the business between the two points demands that a train make a round trip each day between A and B, and that the distance run for the round trip is fifty miles. The growth of business at C, a point twenty-five miles beyond B, requires that extra facilities for despatch of freight be given that point. If the run of the train between A and B be extended to C, the daily train mileage will be one hundred instead of fifty miles. This will require no additional expense for wages, and will not cause a corresponding increase in the expense for fuel or wear and tear; hence it is safe to assume that the extension of the trains run to C will diminish the expense for train service on the business between A and B; that is, providing the freight interests of A and B are not interfered with by the extension of the trip to C.

Station expenses in many cases are not influenced by a greater amount of traffic from or to that station. It may demand more labor from the existing force of employés, or if additional help is required it will be for the lowest positions and wages. An increase of 25 or 50 per cent. in the business at many of the lower-grade stations would not necessitate any extra expense to the road. If the increase be in car-load traffic it may be loaded by shipper or unloaded by consignee, and the only additional labor required from the station employees would be a slight amount of clerical work.

To summarize the reasons why there is a difference between the cost per ton per mile on through and local traffic, we would say that while the former is hauled in full trains of cars loaded to about their full capacity, and with the longest possible haul, the last is carried in smaller trains of cars partly loaded, on the average, and with a haul varying from a few miles to the entire length of the road. The through freight trains are run through from starting point to destination with only the occasional delays caused by stopping for fuel or water, and to get out of the way of passenger trains coming in the same direction on double-track roads, or opposite and higher class trains on single-track roads. The local freight trains stop at every station, dropping and taking on cars, or loading and unloading way freight. Through freight has only to stand its proportion of the expenses at the terminal stations, but the local traffic has not only to pay its proportion of these expenses but has to stand the entire expense of the intermediate stations, where the amount of station expenses per ton of freight received at or forwarded from the station is likely to be greater than the expense per ton on the business of the terminal stations, owing to the great difference in the amount of business.

It may be claimed that the foregoing are mere generalities and do not meet the requirements of the question; that what

is needed is arguments based on figures taken from the actual operations of roads, and demonstrating by illustrations therefrom what are the actual differences in cost of transportation under the various circumstances herein mentioned. The writer frankly acknowledges his inability to do so, and seriously questions whether it be possible to compile data from the statistics of any one road that would furnish a sufficient basis to build theories on that could apply alike to all roads. The object of this article is to point out the impossibility of forming an intelligent and trutbful estimate of what is the true cost of transportation for any single year, and by the mention of a few items that wield an influence on operating expenses, to suggest something that may attract the careful attention to this question of those who are responsible for the operation of the roads.

Owing to the variety of circumstances that govern the traffic of different roads, it demands a thorough and comprehensive knowledge of all matters that appertain to the traffic of the road under consideration before a successful application of these general principles can be made. This knowledge can only be obtained by being placed in a position where these peculiarities of the road would be presented with the fullest details. It should be remembered that the net earnings depend fully as much on the revenue received from traffic as on the expense of handling. Hence an increase of business may be of that nature that it would cost more than the average rate to take care of it, and, providing a sufficiently remunerative rate is obtained for its transportation, still be a profitable business for the road. If the proportion of higher-class freights to the aggregate business of the road be a large one, while the average cost may be exceptionally high in comparison with other roads, if the rates are scaled in the same proportion the business may be a profitable one. The net earnings are what the dividends come from, and anything that will swell the dividends, whether it increases the average cost of transportation or not, will receive the hearty support of the stockholders and be considered as undeniable evidence that their managers are judicious and skillful.

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THE SCRAP HEAP.

Railroad Equipment Notes.

The Schenectady (N. Y.) Locomotive Works are building several new passenger engines with 18 by 24 in. cylinders, and driving wheels 6 ft. diameter, for the New York Central & Hudson River road.

R. D. Cole & Brother, of Newnan, Ga., are building a number of flat cars for the Atlanta & West Point road.

The Tredegar Works, at Richmond, Va., have just finished 200 coal cars for the Alabama Great Southern road, and are building 200 box cars for the same road.

The Chicago Car Wheel Co. has secured a permit to build a foundry 116 by 63 ft. on Dearborn street in Chicago.

The Harlan & Hollingsworth Co., at Wilmington, Del., has just launched a ferry-boat for the Potomac Steamboat Co. This steamer is 240 ft. long, 57 ft. beam and 12 ft. hold, and is to run between Washington, Alexandria and Quantico in connection with the Baltimore & Ohio and the Richmond, Fredericksburg & Potomac roads. The main deck will have tracks for the transfer of cars, and there will be a large saloon for passengers on the upper deck.

The Chester (Pa.) Steel Casting Co. has nearly doubled the capacity of its works during the past year. The company has furnished a very large number of cross-heads and other castings for locomotives, and does a large business in heavy gear-wheels, pinions, roll-spindles, couplings and similar work for rolling mills.

The works of the Boston Forge Co., in East Boston, are now running chiefly on car axles, and employ 65 men.

Iron and Manufacturing Notes.

The Edwards Iron Co. has just completed and put in blast a new furnace at Woodstock, Ala. It is running on brown hematite ores mined in the vicinity, with Alabama coke as fuel.

The firm of George J. Burkhardt & Co., No. 1,341 Buttonwood street, Philadelphia, manufacturers of railroad water tanks, has been dissolved by the death of the senior partner. The business is continued by his sons, under the firm name of George J. Burkhardt's Sons, at the same place.

The firm of Hussey, Howe & Co., of Pittsburgh, steel manufacturers, was dissolved by mutual consent, July 19, by the sale of its works and business to a new firm, under the style of Hussey, Howe & Co. (Limited).

The copartnership heretofore existing under the name of C. G. Hussey & Co., proprietors of the Pittsburgh Copper and Brass Rolling Mills and Smelting Works, expired by limitation, July 20, M. A. Howe retiring. The business will be continued by C. G. Hussey under the same name as heretofore.

Mt. Vernon Furnace, near Ironton, O., will go into blast about Aug. 1.

The Vulcan Steel Works, at St. Louis, is running double turn in all departments. During the month of June the rail mill turned out 3,666 tons of steel rails, the largest production yet made at these works in one month.

Hampton Furnace, near Birdsboro, Pa., owned by the E. & G. Brooke Iron Co., has been rebuilt and will soon go into blast, using charcoal as fuel.

The Ironton (O.) Iron & Steel Works will probably not start up until Jan. 1, unless there is an improvement in the iron market.

Bridge Notes.

The Trustees of the New York & Brooklyn (East River) Bridge have extended until Sept. 6 the time for receiving designs and proposals for the bridge over Franklin Square, in New York, on the approach to the great bridge. All necessary data can be had on application at the office, No. 21 Water street, Brooklyn, N. Y.

Leaf & Meldrum, of Pittsburgh, have a contract for an iron bridge at Oakdale, Pa., on the Pittsburgh, Cincinnati & St. Louis road.

The Intercolonial Railway shops have lately completed two highway bridges over the track at Quispamsis, N. B., which are built entirely of old rails, except the wooden flooring.

The Reading Fast Engine.

The Watertown, N. Y., *Times* says: "The fast passenger locomotive, which was built by the Baldwin Locomotive Works to run between New York and Philadelphia at the rate of 60 miles per hour, was, Thursday, bought by F. W. Eames, of Watertown, for brake trials and tests in England. It will be immediately fitted up with the Eames duplex automatic vacuum brake, and shipped to London. Mr. Eames proposes, while showing the action of the Eames brake on railway trains at the highest speed possible to attain, at the same time to settle the vexed question of the relative superiority of American and English locomotives. The locomotive will be ornamented with a fine portrait of its namesake, Lovett Eames, and also a landscape view of Black River falls, the suspension bridge, and the lower end of Beebee's Island, showing the works of the Eames Vacuum Brake Co."

RAILROAD EARNINGS IN JUNE.

NAME OF ROAD.	MILEAGE. 1880.	1879.	Inc.	Dec.	Per c.	EARNINGS. 1880.	1879.	Increase.	Decrease.	Per c.	EARNINGS PER MILE. 1880.	1879.
						$	$	$	$		$	$
Alabama Gt. Southern	290	290				40,821	23,263	17,558		75.3	141	80
Atchison, Topeka & Santa Fe	1,361	924	437		48.4	720,000	410,808	309,192		75.5	529	445
Burl'gton, Ced. Rapids & North.	492	434	58		13.4	153,378	110,179	43,199		39.3	312	253
Cairo & St. Louis	146	146				33,868	17,728	16,140		91.2	232	121
Central Pacific	2,428	2,180	248		11.4	1,752,000	1,443,088	308,912		21.4	722	662
Chesapeake & Ohio	435	435				211,645	148,457	63,188		42.6	487	341
Chicago & Alton	840	678	162		23.9	609,255	447,794	161,461		36.1	725	660
Chi., Bur. & Quincy	1,857	1,749	108		6.2	1,259,528	1,160,967	98,561		8.5	678	664
Chicago & Eastern Illinois	159	159				93,235	66,315	26,920		40.8	586	417
Chicago, Milwaukee & St. Paul	2,593	1,772	821		46.3	1,038,000	798,658	239,342		30.0	400	451
Chicago & Northwestern	2,297	2,159	138		6.2	1,653,000	1,393,087	259,913		18.4	720	645
Chicago, St. Paul & Minn	248	240	8		3.3	115,253	96,993	18,260		18.8	465	404
Cleve., Col., Cin. & Ind	472	472				401,779	326,598	75,181		23.0	851	692
Cleveland, Mt. Vernon & Del	157	157				34,932	36,249		1,317	7.6	222	231
Del. & Hudson Leased Lines	666	666				311,238	232,936	78,302		33.6	467	350
Denver & Rio Grande	505	337	168		49.8	294,105	91,873	202,232		220.1	582	272
Flint & Pere Marquette	295	280	15		5.3	121,376	73,996	47,380		64.0	411	264
Georgia	307	307				69,398	45,057	24,341		54.1	226	147
Hannibal & St. Joseph	292	292				177,861	107,560	70,301		65.1	609	368
Illinois Central, Illinois lines	873	854	19		2.2	521,277	460,171	61,106		13.3	597	539
" " Iowa lines	402	402				122,230	120,407	1,823		1.5	304	299
Ind., Bloom. & Western	212	212				106,954	90,821	16,133		17.7	504	450
International & Great Northern	526	516	10		1.9	97,418	86,648	10,770		12.4	185	168
Kan. City, Ft. Scott & Gulf	176	160	16		10.0	79,976	63,536	16,440		25.9	454	397
Kansas City, Lawrence & So	272	167	105		63.0	64,328	36,093	28,235		78.2	237	216
Lake Erie & Western	366	301	65		21.6	112,565	48,278	64,287		133.1	308	160
Louisville & Nashville	1,598	973	625		64.2	842,229	504,229	338,000		67.1	527	518
Memphis, Pad. & No	115	115				14,268	11,481	2,787		24.2	124	103
Minneapolis & St. Louis	158	123	35		28.5	72,809	37,845	34,964		92.5	461	307
Missouri, Kansas & Texas	848	786	62		7.9	307,055	221,899	85,156		38.4	362	283
Mobile & Ohio	506	506				113,570	91,609	21,961		24.0	224	181
Nash., Chatta. & St. Louis	349	349				144,155	105,047	39,108		37.2	412	301
N. Y. Central & Hudson River	1,019	1,018	1		0.1	2,653,477	2,022,823	630,654		31.2	2,604	1,987
Northern Central	326	326				419,193	315,307	103,886		33.0	1,289	967
Northern Pacific	714	644	70		10.9	261,269	198,744	62,525		31.5	363	309
Ogdensburg & Lake Champ	122	122				48,784	35,870	12,914		36.0	400	294
Paducah & Elizabethtown	185	185				29,301	21,181	8,120		38.3	158	114
Pennsylvania	1,814	1,716	98		5.7	3,221,475	2,390,809	830,666		34.7	1,778	1,393
Philadelphia & Reading	926	926				1,398,530	1,343,014	55,522		4.1	1,510	1,450
St. L., Alt. & T. H., Main Line	195	195				105,988	69,169	36,819		53.2	544	355
St. L., Alt. & T. H., Belleville L'e	71	71				41,980	31,736	10,244		32.2	591	447
St. Louis, Iron Mt. & Southern	685	685				365,300	281,921	83,379		29.5	533	412
St. Louis & San Francisco	592	366	226		61.7	173,788	88,266	85,522		97.2	294	241
St. Paul, Minn. & Manitoba	674	560	114		20.4	243,407	190,349	53,058		27.9	361	340
St. Paul & Sioux City	476	329	141		42.9	80,328	88,713		8,385	9.5	171	269
Scioto Valley	100	100				21,875	17,661	4,214		23.8	219	177
Texas & Pacific	475	444	31		7.0	153,065	120,815	32,250		26.7	322	272
Toledo, Peoria & Warsaw	237	237				121,814	89,224	32,590		36.5	514	376
Union Pacific	1,853	1,821	32		1.8	1,936,000	1,283,000	653,000		50.9	1,034	704
Wabash, St. L. & Pacific	1,558	1,217	341		28.0	952,048	519,201	432,847		83.4	611	427
Total, 50 roads	34,257	30,103	4,154			23,917,134	18,017,473	5,909,363	9,702		698	598
Total increase			4,154		13.8			5,899,661		32.7		

RAILROAD EARNINGS, SIX MONTHS ENDING JUNE 30.

NAME OF ROAD.	MILEAGE. 1880.	1879.	Inc.	Dec	P.c.	EARNINGS. 1880.	1879.	Increase.	De-crease.	P. c.	EARNINGS PER MILE. 1880.	1879.	Inc.	Dec.	P. c.
						$	$	$	$		$	$	$	$	
Ala. Gt. Southern	290	290				284,767	187,352	97,415		52.0	982	646	336		52.0
Atch.,Top'a & San. Fe	1,243	903	340		37.7	3,704,353	2,753,017	951,336		34.6	2,980	3,049		69	2.3
Bur., Ced. Rap. & No.	492	434	58		13.4	982,306	653,874	328,522		50.2	1,997	1,507	490		32.4
Cairo & St. Louis	146	146				178,379	110,179	68,200		61.9	1,222	755	467		61.9
Central Pacific	2,381	2,180	201		9.2	8,484,255	7,855,408	628,847		8.0	3,563	3,603		40	1.1
Chesapeake & Ohio	435	435				1,256,425	812,808	443,617		54.6	2,888	1,868	1,020		54.6
Chicago & Alton	840	678	162		23.9	3,401,889	2,185,913	1,217,976		55.8	4,050	3,221	829		25.9
Chi., Bur. & Quincy	1,835	1,749	86		4.9	7,973,777	6,510,238	1,463,539		22.5	4,345	3,722	623		16.8
Chi. & Eastern Illinois	159	159				532,732	388,192	144,540		37.2	3,351	2,442	909		37.2
Chi., Mil. & St. Paul	2,441	1,772	669		37.7	5,447,000	4,035,155	1,411,845		35.0	2,231	2,277		46	2.0
Chi. & N. W.	2,290	2,159	131		6.1	8,390,313	6,960,332	1,429,981		20.5	3,664	3,224	440		13.7
Chi., St. Paul & Minn	248	240	8		3.3	693,547	550,742	142,805		25.9	2,797	2,295	502		21.8
Cleve., Col.,Cin. & Ind.	472	472				2,253,336	1,775,788	477,548		26.9	4,774	3,762	1,012		26.9
Cleve., Mt. V. & Del.	157	157				209,068	183,250	25,818		14.1	1,332	1,167	165		14.1
Del.& Hud. leased l'es	666	666				2,308,236	1,778,699	529,537		29.2	3,466	2,671	795		29.2
Flint & Pere Mar.	295	280	15		5.3	743,117	518,201	224,916		43.4	2,519	1,851	668		35.2
Grand Trunk	1,273	1,390		117	8.4	4,958,522	4,108,131	790,391		18.9	3,895	2,999	896		29.9
Great Western	526	526				2,386,407	2,043,431	342,976		16.8	4,537	3,885	652		16.8
Hannibal & St. Jo.	292	292				1,132,826	893,059	239,767		26.8	3,879	3,058	821		26.8
Ill. Cen., Ill. lines	873	854	19		2.2	2,800,194	2,528,400	271,734		10.7	3,208	2,961	247		8.2
Ill. Cen., Iowa lines	402	402				754,100	699,442	54,658		7.8	1,876	1,740	136		7.8
Ind., Bloom & West.	212	212				569,704	523,150	46,554		8.9	2,687	2,468	219		8.9
Inter. & Gt. Northern	526	516	10		1.9	709,936	584,293	25,643		3.8	1,350	1,322	28		2.2
Kan. C'y, Ft. S. & Gulf	176	160	16		10.0	533,261	377,093	156,168		41.4	3,030	2,357	683		28.4
Kansas C'y, Law. & So.	250	167	83		49.7	339,888	202,533	137,355		67.8	1,360	1,212	158		13.2
Louisville & Nash.	1,419	973	446		45.8	3,805,795	2,628,755	1,267,040		48.2	2,745	2,700	45		1.7
Marietta & Cin.	312	312				906,879	687,492	219,387		31.9	2,907	2,203	704		31.9
Mem., Paducah & No.	115	115				95,710	73,580	22,130		30.1	824	640	184		30.1
Minn. & St. Louis	158	133	35		28.5	310,100	198,982	111,118		55.8	1,982	1,618	364		22.7
Missouri, Kan. & Tex.	843	786	57		7.2	1,980,761	1,242,807	737,954		59.4	2,349	1,581	768		48.0
Mobile & Ohio	506	518		12	2.2	1,003,158	856,579	146,579		17.1	1,979	1 653	326		19.2
Nash., Chatta. & St. L.	349	349				1,024,705	837,887	186,818		22.3	2,936	2,401	535		22.3
N. Y. C. & Hud. R.	1,018	1,018				15,742,478	13,157,968	2,584,510		19.6	15,464	12,925	2,539		19.6
Northern Central	326	326				2,215,791	1,834,521	381,270		20.9	6,797	5,627	1,170		20.9
Northern Pacific	669	644	25		3.9	910,038	709,249	200,789		28.3	1,360	1,070	290		26.4
Ogdensb'g & L. Cham	122	122				214,917	148,975	65,942		44.3	1,762	1,221	541		44.3
Pad. & E'town	185	185				178,317	129,493	48,824		37.7	964	700	264		37.7
Pennsylvania	1,807	1,716	91		5.4	19,434,071	15,414,058	4,020,013		26.1	10,755	8,988	1,767		19.6
Phila. & Reading	926	831	95		11.4	8,189,407	6,694,668	1,494,739		22.3	8,844	8,056	788		9.7
St. L., A. & T. H., M. Li'e	195	195				620,083	400,247	219,836		54.9	3,185	2,053	1,132		54.9
St. L., A. & T. H., B. Line	71	71				297,860	247,760	50,094		20.2	4,195	3,490	705		20.2
St. L., Iron Mt. & So.	685	685				2,620,332	1,929,095	691,237		35.8	3,825	2,816	1,009		35.8
St. Louis & San Fran.	535	334	201		60.9	1,116,983	519,854	597,109		114.9	2,088	1,556	532		33.3
St. Paul & Sioux City.	470	329	141		42.9	634,535	496,183	138,352		27.9	1,350	1,508		158	10.5
Scioto Valley	100	100				134,744	124,079	10,665		8.6	1,347	1,241	106		8.6
Toledo, Peoria & W.	237	237				660,636	574,266	86,370		15.0	2,788	2,424	364		15.0
Wab., St. L. & Pacific.	1,555	1,217	338		28.0	5,313,858	3,639,736	1,674,122		46.0	3,417	2,991	426		14.2
Total, 47 roads	31,523	28,425	3,227	129		128,529,626	101,922,980	26,606,646			4,077	3,586	491		13.7
Total increase			3,098		10.9			26,606,646		26.1					

Railroad Benevolence.

A correspondent of the Philadelphia *North American* tells the following story:

"A recent incident on the New York & New Haven Railroad revives drooping confidence in human nature. The friends of a consumptive on the very brink of the grave, who was very poor, asked the company for permission to use two seats in one of their coaches on which to make a bed for the invalid on his passage over the road. This permission was promptly refused, but in its stead the young man and his attendant found, when they were ready to start on their journey, an apartment car assigned to them, with every convenience for the care and comfort of the sick, and of which car they were the only occupants. This car was set apart for their special use, without any extra charge, and without solicitation, they paying the usual fare of ordinary passengers."

Schooners.

The Erie train laid quietly on the meadows, waiting while a brick-laden schooner from Little Ferry slowly worked her way through the Hackensack River draw. The passengers fidgeted about as is the wont of passengers at such a time.

"Why," said the Solemn Man from Hohokus, "is the Erie Railroad like a tramp?"

"Tramps is handy sometimes," meditatively said the politician from Paterson, "now in the Fifth ward last spring it was them tramps that done the business. Come cheap, too."

"Tramp!" broke in the commuter from Suffern, "the Erie is more like a blasted robber. Now just look at the commutation"—

"Oh, dry up!" said the flippant young man from Mahwah. "We've heard enough of that. Come old man, we give it up."

"The Erie," slowly continued the Solemn Man, "is like a tramp because it will stop anywhere for a schooner."

And it was unanimously voted that the Solemn Man from Hohokus should set up the schooners for the crowd as soon as the train got to Jersey City.

RAILROAD GAZETTE

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EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

THE NEW YORK GRAIN CARRIERS.

For the six months ending with June the receipts and shipments of grain of all kinds and of flour (reduced to bushels) at the City of New York has been by each route:

Route.	1880.	1879.		Inc. or Dec.	P. c.
New York Central	23,217,877	25,734,140	D.	2,516,263	9.8
N. Y., Lake Erie & West.	14,133,352	14,890,979	D.	757,627	5.1
Pennsylvania	7,501,939	9,655,625	D.	2,153,686	22.3
Other railroads	444,827	632,429	D.	187,602	29.6
Total by rail	45,297,995	50,913,173	D.	5,615,178	11.0
Vessels coastwise	1,352,870				
Canal	19,332,084				
Total by water	20,684,954	9,751,789		10,933,165	111.1
Total rail and water	65,982,949	60,664,962	I.	5,317,987	8.8

Thus while the New York receipts have been 5,300,000 bushels, or 8.8 per cent., more this year than last, the quantity delivered by railroad has been 5,600,000 bushels, or 11 per cent., less. The gain has been wholly due to the enormous receipts by water, 93 per cent. of which were by canal. The receipts by water considerably more than doubled. This is not due wholly to greater activity on the canals, but partly also to the earlier opening, which has made the season this year eighteen days longer, and increased the number of days of canal *deliveries* this year probably about *one half*. But even in June, when there were deliveries every day both years, the canal receipts were 11,175,000 bushels this year against 5,150,000 last, and the average canal receipts *per day* since the opening were about 364,756 bushels this year against 278,622 last year, or 31 per cent. more. For the six months 68.6 per cent. of the total receipts were by rail this year, against 83.9 per cent. last year. Considering the difference in rail rates, however, the rail movement of this year must be considered an enormous one. Indeed, with the exception of 1879, it has never been approached before.

This will be shown by the following statement of the receipts by each route for six years:

Grain Receipts at New York by Routes for the Six Months ending with June for six years.

	1875.	1876.	1877.
N. Y. Cen.	10,887,302	15,452,392	10,046,878
Erie	9,325,659	10,480,331	5,736,251
Penna.	4,858,672	3,838,010	3,526,400
Other R. R.	341,957	410,337	156,077
Total rail	25,413,590	30,181,070	19,465,606
Water	6,465,681	11,191,481	8,754,269
Total	31,879,271	41,372,551	28,219,875
	1878.	1879.	1880.
N. Y. Cen.	23,676,173	25,734,140	23,217,877
Erie	10,396,344	14,890,979	14,133,352
Penna	5,570,675	9,655,625	7,501,939
Other R. R.	509,829	632,429	444,827
Total rail	40,253,021	50,913,173	45,295,995
			1,352,870
			19,332,084
Water	19,997,019	9,751,789	20,684,954
Total	60,250,040	60,664,962	65,982,949

Thus though the rail receipts this year were 5,000,000 bushels *less* than last year, they were 5,000,000 *more* than in 1878, 25,000,000 more than in 1877, 15,000,000 more than in 1876, and 20,000,000 more than in 1875. The receipts by water, though twice as great as last year, are about the same as in 1878, when also the canal opened very early, but when it had to compete with much lower rail rates than have ruled this year.

The percentage of the *total receipts* by each route during the half-year have been, for the six years.

	1875.	1876.	1877.	1878.	1879.	1880.
N. Y. Cen.	34.1	37.3	35.6	39.3	42.4	35.2
Erie	29.3	25.3	20.3	17.3	24.6	21.4
Penna.	15.2	9.3	12.5	9.4	15.9	11.4
Other roads	1.1	1.0	0.6	0.8	1.0	0.6
Total rail	79.7	72.9	68.0	66.8	83.9	68.6
Water	20.3	27.1	31.0	33.2	16.1	31.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

This table will not serve to compare the rail routes together with the water route, because the railroads were carrying throughout the half-year, and the canal, when open longest, only about two months, and sometimes hardly more than one. But taking it as it stands, it appears that in every year the New York Central has brought more grain to New York in the first half of the year than any other route, and in four of the six years the canal has stood second, and the Erie road in the other two.

The percentage of the *rail receipts* that arrived by each route was:

	1875.	1876.	1877.	1878.	1879.	1880.
N. Y. Cen.	42.8	51.2	51.6	58.8	50.6	51.2
Erie	36.7	34.7	29.5	25.8	29.2	31.2
Penna.	19.1	12.7	18.1	14.1	19.0	16.6
Other roads	1.4	1.4	0.8	1.3	1.2	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

The fluctuations from year to year shown are really surprisingly small considering all the circumstances. Since 1875 the New York Central has kept substantially the same position, except in one year, always delivering a little more than half of all the grain arriving at New York by rail. In 1878, it is true, it did much better than that, and its gain came about equally from the Erie and the Pennsylvania. The latter road's large percentage in 1879 was due partly to the snow blockade which ruined business on the New York Central for a month or more and injured it on the Erie. This year the Erie has had the advantage of an immense addition to its rolling stock and improvements which have at once enlarged the capacity of the road and enabled it to do its work more promptly and satisfactorily to shippers, and, as we see, it has had a larger proportion of the grain than before since 1876. Its increase in percentage since last year is not large, however, and has been made without reducing the New York Central's. Every one of the roads carried a smaller quantity this year than last, but in the case of the Erie the decrease is very small.

While for the six months of this year 31.4 per cent. of the receipts of New York have been by water, during May and June, out of total receipts of 35,092,497 bushels, 19,701,776, or 56 per cent. were by water. Though the canal was open, or rather there were receipts from the canal at New York throughout June, and not to any extent in the first week of May, still 62.3 per cent. of the total receipts were by water in May, and only 52.4 in June. In June, however, the deliveries by canal were probably as great as the existing capacity of the boats would permit, and the total receipts by rail and water were the largest for any month in the history of the trade except October, 1879. Thus traffic was forced upon the railroads by the inability of the canal to carry it all. However that may be, the receipts by rail at New York last June were among the largest ever known. Only in three months have they ever been exceeded, and then but slightly, these months being August in 1878 and 1879 (at very low rates) and March of this year.

All the above tables include flour and grain. Practically, however, the canal no longer competes for flour. There are some receipts by coasting vessels, but the canal this year is credited with the equivalent of but 20,013 bushels, other vessels with 604,869, while the railroads delivered the equivalent of 9,200,454 bushels. If now we deduct the flour receipts as being freight for which the canal does not compete, we find that in the first half of this year the canal brought to New York 19,300,000 bushels of grain out of a total of 56,100,000, or 3.44 per cent., in the months of May and June it brought 19,300,000 out of a total of 31,850,000, or 60½ per cent., instead of 56 per cent. when flour is included. Within 53 days it has delivered this quantity while the railroad that has brought the most grain to New York has delivered but 18,900,000 bushels in *six months*, and in the two months that the canal has been open, only 6,208,000 bushels (not including flour). This sufficiently illustrates the great importance of the Erie Canal to New York *as a grain carrier*, especially when rail rates are well maintained as they have been this year. Under such circumstances New York is the terminus of the cheapest route, and therefore gets the lion's share of the traffic. The fluctuation of the receipts by each route from month, to month. may be traced below:

	New York Central.	Erie.	Penna.	Other roads.	By water.	Total.
January	2,744,331	1,088,768	991,732	119,250	249,092	5,093,173
February	2,358,293	1,854,946	778,341	147,684	164,179	4,753,436
March	5,847,825	3,049,674	1,709,335	96,952	224,284	10,925,070
April	4,476,919	2,823,360	1,395,570	34,974	345,630	9,078,773
May	3,578,884	1,407,032	1,045,892	20,799	8,351,346	13,409,943
June	5,916,625	3,566,049	1,586,070	23,866	11,350,430	21,682,554

The fluctuations from month to month have been considerable, without regard to the change caused by the opening of the canal. The largest net railreceipts were in March, but in June, when water receipts were enormous, they were almost as large; in May only half so great. The winter movement was heavy, but probably not so large as it would have been had not shippers expected that the combination on east-bound freights would go to pieces, and rates reduced greatly, as they had been for several winters past.

The percentage of *rail* receipts, delivered by each road each month, was:

	N. Y. Cen.	Erie.	Penna.	Other.
January	47.0	34.0	17.0	2.0
February	50.8	29.3	16.7	3.2
March	54.7	28.5	16.0	0.9
April	51.3	32.3	16.0	0.4
May	51.0	27.8	20.7	0.5
June	50.5	33.9	15.4	0.2

The fluctuations shown here are quite considerable, the New York Central varying from 47 to 54.6 per cent., the Erie from 27.8 to 34, and the Pennsylvania from 15.4 to 20.7.

RAILROAD EARNINGS IN THE FIRST HALF-YEAR.

Our table of railroad earnings for June has reports of 50 roads with an aggregate mileage this year of 34,257, or about 40 per cent. of the total mileage now in operation in the United States, and 13.8 per cent. more than the same roads were working last year. With this increase of mileage they have earned in the aggregate $5,899,661, or 32.7 per cent., more than last year, their average earnings per mile of road having increased from $598 to $698, or 16.7 per cent. Of the 50 roads only two (the Cleveland, Mount Vernon & Delaware and the St. Paul & Sioux City) show any decrease in total earnings, and only three (the above with the Chicago, Milwaukee & St. Paul) any decrease in earnings per mile of road. The improvement is a magnificent one, and the more so because the comparison is not with a year of exceptionally light earnings, as the following table of earnings per mile for a series of years will show:

	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Atch., Top. & S. F.	$200	$205	$270	$264	$318	$445	$529
Bur., C. R. & Nor.	211	254	189	245	233	253	312
Cairo & St. L.	....	176	164	137	132	121	232
Cen. Pacific	1,016	1,246	1,165	736	660	662	725
Chic. & Alton	764	588	694	529	530	527	725
Chic., Bur. & Qu.	839	750	819	591	543	664	678
Chi. & East. Ill.	....	....	....	313	381	417	586
Chi., Mil. & St. P.	633	530	627	417	433	451	400
Chi. & N. W.	646	580	686	493	519	645	720
C., Col., Cin. & I.	732	606	680	609	548	692	851
Cl., Mt. Ver. & D.	....	....	214	224	186	231	222
Den. & Rio Gr.	....	294	289	214	294	272	582
Georgia	307	226	186	174	163	147	226
Hannibal & St. J.	495	414	478	550	471	368	609
Ill. Cen., Ill.	805	633	725	547	527	539	597
Ill. Cen., Iowa	310	387	385	237	303	299	304
Ind., Bloom. & West	400	239	375	248	384	450	504
Int. & Gt. North.	....	164	141	140	148	168	185
Louisville & Nash	465	399	515	558	531	518	527
Mem., Pad. & No	....	....	....	110	125	100	124
Mo., Kan. & Tex.	310	282	297	328	264	283	362
Mobile & Ohio	228	170	163	168	173	181	224
Nash., Chat. & St. Louis	....	....	347	340	283	301	412
Northern Cen	1,298	1,306	1,164	1,005	941	967	1,289
Pennsylvania	2,061	1,897	1,787	1,425	1,387	1,393	1,778
Phila. & Reading	1,896	1,147	1,214	1,285	1,586	1,450	1,510
St. L., A. & T. H., Belleville Line	608	511	525	495	542	447	591
St. L., I. M. & So.	349	430	369	400	372	412	533
St. L. & San Fran	....	....	394	295	243	241	294
Scioto Valley	....	....	....	276	283	177	219
Texas & Pac.	381	257	347	398	282	272	322
T., P. & Warsaw	....	329	574	398	324	376	514
Wabash, St. L. & P.	....	....	545	438	416	427	611

Here we have reports from 33 roads for June of the last four years, of 30 for the last five years, of 26 for six years, and of 22 for seven years. Now, of the 33 that report for the last four years, 25 have larger earnings per mile this year than in any other of the four, while only two had larger earnings than this year in 1879, five in 1878 and seven in 1877, and this though many of the companies have this year a large mileage of new road with undeveloped traffic which tends to reduce their earnings per mile. Of the 30 roads that report for 1876 as well as 1880, nine had larger earnings per mile in 1876, and of 26 that report for 1875, seven earned more per mile in that year than this, but of the 22 reporting for 1874, twelve had larger earnings per mile that year. Many of these latter, however, have an immense addition of new mileage since 1874—as the Central Pacific, the Chicago & Alton, the Chicago, Burlington & Quincy, and the Chicago, Milwaukee & St. Paul. It may be noted, however, that several roads not much affected by additions to mileage have not even yet reached the rate of earnings that they had in 1874, among which may be noted both the Illinois and the Iowa lines of the Illinois Central, the Pennsylvania and the Philadelphia & Reading. But it should be remembered that in 1874 the price of gold averaged more than 110, and to compare with 1880 a reduction of at least one-tenth in the 1874 receipts should be made on this account. Moreover, at that time, though rates were so much higher, the proportion of expenses to earnings was greater than now on most roads—much greater on many—so that with the same earnings profits may be considerably greater this year.

For the six months ending with June we have re-

ports from 47 different lines, having 31,523 miles of road this year, and 10.9 per cent. more than they were working last year. These roads earned in the aggregate $128,529,626, which is 26.1 per cent. more than their earnings in the corresponding half of last year, and their average earnings per mile of road increased from $3,586 to $4,077, or 13.7 per cent. Not one of the roads shows any decrease in total earnings, and only three, all having a large addition of new road in new country, have smaller earnings per mile than last year. The roads so distinguished are the Atchison, Topeka & Santa Fe, which with an increase of 37.7 per cent. in mileage has a decrease of only 2.3 per cent. in earnings per mile; the Chicago, Milwaukee & St. Paul, also with an increase of 37.7 per cent. of new road, has earnings per mile less by 2 per cent., and the Central Pacific, whose earnings per mile are 1.1 per cent. less and its mileage 9.2 per cent. greater. In every one of these cases the result is an extremely favorable one.

The first half of 1879 was considered a pretty favorable one, but our table of 32 roads showed very nearly the same earnings per mile in 1879 as in 1878 for the half-year. East-bound freight was carried from the Mississippi to the Atlantic cities at extremely low rates throughout the half-year *both years*, and for nearly half the time the railroads of the Southwestern Association were carrying on a war of rates that materially reduced their earnings. Freight traffic, especially through shipments eastward, was heavy in 1878 and 1879 as well as this year, passenger traffic and in the East and South local freight traffic were generally very light, and this year have been large.

For a comparatively small number of roads we are able to give the earnings per mile of the half-year for a series of years:

	1875.	1876.	1877.	1878.	1879.	1880.
Atch., Top. &S. F.	$1,127	$1,530	$1,458	$1,921	$3,049	$2,980
Burl., C. R. & Nor.	.....	1,469	1,165	1,863	1,507	1,997
Cairo & St. Louis.	943	850	848	740	755	1,222
Central Pacific....	6,118	6,104	4,649	3,790	3,603	3,563
Chicago & Alton..	3,251	3,456	2,997	2,956	3,221	4,050
Chic., Mil. & St. P.	2,425	2,829	2.110	3,010	2,277	2,231
Cleve., Mt. Ver. & Del.....	...	1,173	1,176	1,141	1,167	1,332
Grand Trunk.....	.....	.....	3,115	3,130	2,999	3,895
Great Western....	.....	.....	3,904	4,395	3,885	4,537
Hannibal & St. Jo.	2,518	3,056	3,135	2,498	3,058	3,879
Ill. Cen., in Ill.....	...	3,791	3.076	3,146	2,961	3,208
Ill. Cen., in Iowa..	.....	.....	1,491	1,975	1,740	1,876
Int. & Gt. North...	1,286	1,235	1,279	1,134	1.322	1,350
Mo., Kan. & Tex..	1,564	1,804	1,821	1,598	1,581	2,349
Mobile & Ohio	1,484	1,616	1,566	1,776	1,653	1,979
St. L., A. & T. H., Belleville Line..	3,017	3,302	3,359	3,173	3,490	4,195
St. L. Iron Mt. & So.....	2,398	2,510	2,821	2,729	2,816	3,825
T., P. & Warsaw..	1,812	2,926	2,103	3,179	2,424	2,788

Here we have reports for the half-year from 18 roads for the last four years. Those that have had larger earnings than in 1880 are three in 1879, four in 1878, and one in 1877. Fifteen report for 1876, and of these four had larger earnings per mile than in 1880, while of twelve that report for 1875, two had larger earnings then.

This half-year, thus, is by far the most prosperous of all of which we have a record. Four roads have increased their earnings per mile more than 50 per cent. and 21 more than 25 per cent.

July will close the crop-year, which will certainly be the most prosperous one for the railroads that they have known for many years. After that month, circumstances sometimes change quickly and greatly. Railroad men will remember how after the harvest of 1877, which was a good one, there was a rush to hurry forward the grain, this country and Europe both being pretty bare of stocks. This at once forced up rates, by water and by rail, and from the extreme of depression that prevailed in the first half of that year there was a rapid change to activity and comparative prosperity—the actual beginning of the present great prosperity and general confidence. Enough is known about the harvests now (though they remain to be completed in Minnesota and Dakota) to make it all but certain that we have had the fourth in succession of a series of bountiful crops, and that almost certainly there will be fully as much small grain to move as there ever has been in this country and possibly more, since the prospect is good for the best crop of corn ever grown. And the news of European harvests makes it certain that the average price received for our grain will be considerably less than last year. We would say, therefore, that we are almost sure to have another year of heavy traffic, but that it is not so certain that rates can be maintained as well as they have been during the past crop year. Whether the price is high or low, the grain will be moved soon or late; but if prices are very low the lake vessels and the canal boats and roads that carry grain from St. Louis and the lake cities to the East may have to accept lower rates; and even the lines farther west, that bring the grain from the farmers' stations to the lakes, may have to reduce their prices somewhat. But there is likely to be great activity at all events, and as local traffic is now fairly started forward, and passenger traffic also, gains in these may very easily balance any possible losses because of any loss by lower rates on through freight.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Louisiana Western.—The track from Vermillionville, La., westward, has been extended 19 miles.

Danville, Olney & Ohio River.—Extended from Casey, Ill., southward to the Embarrass River, 20 miles. Gauge 3 feet.

Ohio & West Virginia.—Completed by laying track from Eagle Furnace, O., to Vinton, 10 miles.

This is a total of 49 miles of new railroads, making 2,424 miles thus far this year, against 1,122 miles reported at the same time in 1879, 900 miles in 1878, 751 miles in 1877, 1,010 miles in 1876, 538 miles in 1875, 839 miles in 1874, 1,872 miles in 1873, and 3,237 miles in 1872.

CAST-IRON CAR WHEELS, as is generally known, are little used in Europe, and are generally regarded there as very dangerous, and especially unfit for use under passenger cars. We might suppose this opinion to be founded on ignorance, were it not that some cast-iron wheels have been used for many years, especially in Austria, there being some Hungarian iron-works famous for the "chilling" property of their iron. But as in spite of this long experience, the opinion prevails there that cast-iron wheels are not only inferior, but positively unsafe, so much so that we believe many companies will not permit cars with cast-iron wheels to pass over their roads, though loaded with freight for stations on or beyond their lines, it has naturally been supposed in this country that the European chilling iron must be greatly inferior to ours. But it now seems questionable whether the cast-iron car wheels in Europe are not quite good and safe. An Austrian engineer, Mr. Emil Stötzer, foreman of the shops of the Empress Elizabeth Railroad at Linz, calls attention to the fact that during the past winter, which in Europe was an exceptionally severe one, while the cases of *tire* breakages amounted to thousands, and not a few accidents were due to this cause, so far as is known there was *not a single case* of the breakage of a cast-iron wheel, at least not one which interrupted traffic. In view of this he suggests that the prevailing prejudice against cast-iron wheels should be abated, and that a great deal might be gained if at least all the freight cars that have no brakes should be provided with cast-iron wheels, but thinks that experiments should be made with cast-iron wheels under brakes also. He mentions the use of cast-iron wheels under passenger cars in this country, but seems not to understand how general this use is, and that of the 496,718 cars reported by Poor's Manual as the stock possessed by our railroads in 1879, probably 495,000 have cast-iron wheels.

THE AMERICAN INSTITUTE OF MINING ENGINEERS purposes to combine business with pleasure at the next quarterly meeting in a manner that suggests delightful possibilities. The meeting is to be held in Marquette, or rather in the Lake Superior mining regions, the first rendezvous being at Marquette. Members from the East are to leave New York Aug. 20, and at Chicago on the next day (Saturday) will be joined by members from other parts of the country. Remaining in Chicago over Sunday the whole party will be taken in a special train over the Chicago & Northwestern Railway to Marquette, which is to be reached the night of Monday. Here the party (members and ladies accompanying them) will be met by a steamer, which is to be their residence thenceforth during their stay in the Lake Superior country, and on it excursions will be made to various points on the lake interesting to the profession, as to the copper mines of the Keenewaw Peninsula, over to the north side of the lake to Silver Islet and Thunder Bay, and then down by the Sault Ste. Marie and the Straits of Mackinaw into Lake Michigan, the whole ending in time for visitors from New York to get back there by September 4. The arrangements for the trip are being made by a committee, of which Mr. Wm. P. Shinn, of St. Louis, is chairman, and Mr. Joseph D. Weeks, of Pittsburgh, secretary, who wish to know as early as possible how many will attend, that provision may be made for them, and who will give further information in a circular, to be issued hereafter. A trip to Lake Superior is generally considered in the Northwest as the choicest and coolest of summer excursions, and it is probable that the mining engineers will embrace this opportunity of making it in good and congenial company, with great heartiness and unanimity.

NEW YORK CENTRAL EXPENSES have not been reported with the statements of monthly earnings that have been published this year; but the banking-house of J. S. Morgan & Co., London, that has charge of the syndicate's stock placing in England, has lately published a statement in which net as well as gross earnings were given for June and the nine months of the fiscal year. Examination shows, however, that in all probability the net earnings were estimated, by the easy method of assuming them to have increased in the same proportion as the gross earnings. The June gross earnings are 31.1 per cent. more than last year, and the London statement of net earnings makes them too 31.1 per cent. more than last year, and for the nine months the figures for net earnings show an increase of 17.1 per cent., which is the actual percentage of the increase of gross earnings for that time. The net earnings given for the nine months last year are $9,123,000, which is very nearly three-fourths of the actual net earnings of the whole year of which they were a part, and both for the nine months and for June of last year they are about 43 per cent. of the gross earnings, which was (nearly) the proportion of net earnings to gross for the whole of last year. The statement has been widely copied in this country as giving the first clue to the profits of this year. We should say, however, that it does not err on the side of extravagance. On the Erie and the Pennsylvania, which report net as well as gross earnings, the percentage of increase has been very much greater in net than in gross, and so it has been on most other roads that report expenses.

WATER RATES have advanced all around during the past week. Lake rates, which were at the lowest point of the year on Wednesday of last week (3 cents a bushel for corn and 3½ for wheat from Chicago to Buffalo), began to advance this week, and by Wednesday had reached 4 to 4½ cents for corn.

Canal freights were later to advance, but Wednesday were about half a cent a bushel higher than the week before, standing at 3¾ cents a bushel for oats, 5½ for corn and 6 for wheat from Buffalo to New York.

Ocean freights, which were already high last week, rose ¾d. per bushel on grain by steam from New York to Liverpool to 8¾d., which has very seldom been exceeded. Only in two weeks of 1879 (in October) were these rates reached, but they were somewhat exceeded throughout January and February in 1878.

Current lake and canal rates are still much lower than the rail rates from the lake cities to the seaboard, and till the shipments become so large as to overtax the capacity of the vessels, it is not likely that through rail shipments will become very large. But the Western and Northwestern roads will probably soon be crowded with trains carrying grain.

POOR'S MANUAL for the current year is issued this week, but reaches us so late that we have been unable to notice anything further about it than that it is fatter than ever, occupying about forty pages more than last year. The statistics of the introduction, which we published last week, show it to be more complete than ever before, and our daily use of it ever since it was published shows that it grows more accurate as well as fuller from year to year. But to a very large share of our readers comment and commendation of the work are alike superfluous; they have long ago found that it is indispensable—as much so as an almanac.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Texas & Pacific, annual meeting, at the office in Philadelphia, Aug. 10, at 1 p. m.

Dividends.

Dividends have been declared as follows:

Connecticut & Passumpsic Rivers, 2 per cent., semi-annual, payable Aug. 2.

Massawippi Valley (leased to Connecticut & Passumpsic Rivers), 2 per cent., semi-annual, payable Aug. 2.

Cedar Rapids & Missouri River (leased to Chicago & Northwestern), 1 per cent., quarterly, on common, and 3½ per cent., semi-annual, on preferred stock, payable Aug. 2.

Foreclosure Sales.

The *Laurens Railroad* will be sold in Columbia, S. C., August 2, under foreclosure, the Court having overruled a motion to delay or transfer the sale. The total debt of the company is about $175,000. The road is 30 miles long, from Newberry, S. C., on the Greenville & Columbia road, to Laurensville.

Western Society of Engineers.

The first election under the new constitution of this society (formerly the Civil Engineers' Club of the Northwest) will be held at the rooms in Chicago, on the evening of Aug. 3. Members not able to be present can send ballots by letter, or authorize some other member to vote for them.

At an informal meeting held July 6, the following nominations were made:

For President, E. S. Chesbrough, W. Sooy Smith.
For First Vice-President, Moses Lane, W. S. Pope.
For Second Vice-President, D. C. Cregier, S. S. Greeley.
For Secretary, L. P. Morehouse, C. S. Seyton.
For Treasurer, Charles Fitzsimons, W. S. McHarg.
For Librarian, C. W. Durham, J. W. Weston.
For Trustees (three to be chosen), E. S. Chesbrough, D. C. Cregier, S. S. Greeley, O. B. Green, R. J. McClure, W. S. McHarg, H. C. Nutt, H. A. Rust.

Western Passenger Agents' Meeting.

A meeting was held in Chicago, July 23, at which there were present E. St. John and John Sebastian, Chicago, Rock Island & Pacific; S. H. Hooper, Hannibal & St. Joseph; J. R. Wood, Chicago, Burlington & Quincy; W. A. Thrall, Chicago & Northwestern; A. H. Hanson, Illinois Central; F. Chandler, Missouri Pacific; H. C. Townsend and George H. Daniels, Wabash, St. Louis & Pacific; E. A. Ford, Vandalia; James Charlton and B. Bowes, Chicago & Alton; George Washington Smith, Lake Erie & Western. Mr. E. A. Ford presided, and George H. Daniels acted as Secretary.

The Knights Templar rates were first considered and disposed of by the adoption of the following:

"*Whereas*, The report of the Committee of the St. Louis Association, to which was referred the action of the Indianapolis & St. Louis Railroad in making the rate of $5 for Knights Templar from St. Louis to Chicago and return, erroneously names the rate of $8.70, which was broken by said action of the Indianapolis & St. Louis Railroad, as having been made by the Chicago & Alton road.

"*Resolved*, That this meeting recommend that the report of said committee be so amended as to show the fact that the rate so broken was not made by the Chicago & Alton road, but was made by and at a mass meeting of all the lines, held at Chicago, April 15, 1880."

Another resolution was passed whereby all lines agreed that no reduced rate should be made from Kansas City or any other point to St. Louis, or any other point from which a lower rate than single fare for the round trip to Chicago has been quoted for Knights Templar, and that the question of rumored cuts at Emporia, Fort Scott, etc., be left with

the Atchison, Topeka & Santa Fe, Kansas City, Fort Scott & Gulf, and Kansas City, Lawrence & Southern roads to decide what is best to be done to meet the cuts of the Missouri, Kansas & Texas road, if they find that there is any truth in said rumors.

The charges preferred by the Hannibal & St. Joseph Road against the Chicago, Rock Island & Pacific Road for cutting rates at Kansas City were next considered. No action was taken, as Mr. St. John stated that his road was not a party to any agreement made by the other lines on business originating at Missouri River points. He claimed the right to pay commissions at Kansas City to any persons he desired.

ELECTIONS AND APPOINTMENTS.

Atlanta & West Point—At the annual meeting in Atlanta, Ga., July 23, the following directors were re-elected: W. B. Berry, J. S. Bigby, L. M. Hill, John P. King, Ferdinand Phinizy, D. N. Speer, B. C. Yancey. The board elected W. B. Berry, President; L. P. Grant, General Manager; W. P. Orme, Secretary and Treasurer. Mr. Berry succeeds Judge John P. King, who has been President for thirty years. Mr. Grant's title is changed from General Superintendent to General Manager.

Bergen County.—The officers of this company are: President, Hugh J. Jewett; Vice-President, Cortland Parker; Secretary, A. R. Macdonough; Treasurer, Bird W. S. Spencer. It is controlled by the Erie.

Boston & Albany.—At a meeting held in Boston last week the Board elected William Bliss President, in place of D. Waldo Lincoln, deceased. Mr. Bliss has been connected with the road for many years; he has been General Manager since October, 1872, nearly eight years, and before that was General Freight Agent.

No appointment to the office of General Manager was made.

Chicago & Alton.—Mr. J. C. Morse has been appointed Master Mechanic of the Kansas City and St. Louis divisions. His office is at Mexico, Missouri.

Chicago, Milwaukee & St. Paul.—Mr. Andrew L. Scott has been appointed Paymaster.

Chicago, St. Louis & New Orleans.—Mr. J. W. Coleman has been appointed Assistant General Passenger Agent. He was formerly on the New Orleans, Mobile & Texas.

Mr. M. Kennedy has been appointed General Baggage Agent.

Continental.—An attempt is being made to revive this company and the following officers were chosen at a recent meeting: President, Hugh McCullough; Vice-President, J. T. Sneed; Secretary, Wm. Thorp; Treasurer, A. H. Day; Chief Engineer, James E. Abbott.

Illinois Midland.—Mr. H. W. Osborn has been appointed Acting Master of Transportation, in place of Day K. Smith, resigned.

Mobile & Girard.—The officers, as lately chosen, are President, *pro tem*, R. L. Mott; Secretary and Treasurer, J. M. Frazer; Superintendent, W. L. Clark.

Mobile & Ohio.—Mr. C. F. Waller is appointed General Freight and Passenger Agent, in place of C. L. Fitch, resigned.

Peoria & Jacksonville.—The directors of this company (successor to the Peoria, Pekin & Jacksonville) have elected Solon Humphreys President; George Skinner, General Manager; George P. Millard, Secretary and Treasurer.

Providence & Worcester.—Mr. H. M. W. Cambridge has been appointed Master of Transportation, in place of A. E. Quackenboss, resigned.

Selma, Rome & Dalton.—Mr. Randolph Fink has been appointed General Manager. He was formerly on the Virginia Midland, but for some time past has been General Manager of the Memphis & Little Rock. Mr. Fink is a brother of Mr. Albert Fink, Trunk Line Commissioner.

Sioux City & Pacific.—Mr. J. S. Wattles has been appointed Assistant Superintendent of all divisions of this company's lines.

Springfield & Northwestern.—The officers of this company as reorganized under control of the Wabash are: President, J. T. Stuart; Treasurer, Wm. Ridgely; General Manager, E. B. Hyde; Secretary, W. B. Ridgely.

Vermont, Greensburg & Rushville.—Mr. Frank Hall, of Rushville, Ind., has been chosen a director, in place of Leonidas Sexton, deceased.

Vernon & Boston Telegraph.—At the annual meeting at White River Junction, Vt., July 28, the following officers were chosen: President, Norvin Green; Secretary and Treasurer, R. H. Rochester.

Watchung.—The officers of this company, as lately reorganized, are: President, Abram S. Hewitt; Secretary, A. R. Macdonough; Treasurer, Bird W. Spencer. It is controlled by the Erie.

PERSONAL.

—Mr. Robert Knight has resigned his position as Superintendent of the Danville, Olney & Ohio River road.

—Mr. C. L. Fitch has resigned his position as General Freight and Passenger Agent of the Mobile & Ohio road.

—Mr. L. B. Salisbury, Superintendent of Machinery of the St. Louis & Southeastern road for a number of years past, has resigned that position.

—Mr. Thomas West, Master Mechanic of the Buffalo Division of the New York, Lake Erie & Western Railroad, has resigned to go into other business.

—The Missouri Democrats have nominated Geo. C. Pratt, of Boone County, as their candidate for Railroad Commissioner. He has been Secretary of the Commission.

—Mr. John B. Peters, formerly Superintendent of the Scioto Valley road, is now running the Park Hotel at Columbus, O. Mr. George Chandler, formerly General Ticket Agent of the same road, is clerk for Mr. Peters.

—Gen. Wm. McRae has not yet accepted the office of General Manager of the Carolina Central road, to which he was recently chosen. It is said the managers of the Western & Atlantic are very desirous of keeping General McRae on that road, where he has been very successful.

—Mr. James M. Broadus, General Passenger Agent of the Washington City, Virginia Midland & Great Southern road, died at his residence in Alexandria, Va., July 23, aged 60 years, after a long illness. He was a native of Culpeper County, Va., and had been connected with the road for many years.

—Mr. George H. Nettleton has resigned his position as General Manager of the Kansas City, St. Joseph & Council Bluffs road. It is understood that this resignation is on account of the approaching transfer of the road to the Chicago, Burlington & Quincy. Mr. Nettleton still retains charge as General Manager of the Kansas City, Ft. Scott & Gulf, and the Kansas City, Lawrence & Southern roads.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods have been reported as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Six months ending June 30:				
Northern Central.	$2,215,791	$1,834,521	I. $381,270	20.8
Net earnings...	688,715	490,996	I. 197,719	40.3
Pennsylvania.....	19,434,071	15,414,058	I. 4,020,013	26.1
Net earnings...	8,094,209	5,845,656	I. 2,248,553	38.5
Month of June:				
Pennsylvania.....	$3,221,475	$2,390,809	I. $830,666	34.7
Net earnings...	1,012,247	600,994	I. 411,253	68.4
Second week in July:				
Chi. & Alton.....	$156,859	$125,298	I. 31,561	25.2
Minn. & St. Louis.	15,200	9,038	I. 6,162	68.5
Week ending July 9:				
Great Western....	$93,375	$77,925	I. $15,450	19.8
Week ending July 17:				
Grand Trunk.....	$198,121	$149,431	I. $48,690	32.6

Grain Movement.

For the week ending July 17 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past seven years:

		—Northwestern Shipments.—			
Year.	Northwestern Receipts.	Total.	By rail.	P. c. by rail.	Atlantic Receipts.
1874.....	3,090,789	2,101,661	346,907	16.5	2,836,070
1875.....	3,964,658	4,113,357	759,214	18.5	2,457,456
1876	2,938,546	3,302,159	1,032,825	31.3	2,041,844
1877.....	4,156,585	3,239,327	583,147	18.0	2,293,369
1878.....	4,350,960	3,095,508	1,347,994	43.5	3,512,025
1879.....	4,379,934	3,991,332	1,451,029	36.3	5,842,188
1880.....	5,708,152	5,383,749	1,137,290	21.1	7,954,221

The receipts of the northwestern markets are extraordinarily large for the season (when they usually are very light) and indeed show an increase of 30 per cent. over the previous week, and are the largest for six weeks. The very large wheat receipts at St. Louis indicate that the new harvest is already beginning to swell the receipts, and if so, we may expect them to increase steadily hereafter. The shipments of these markets are nearly a million bushels less than the week before, nearly half of which falls on the railroads, which have not taken so little before in a week for a long time. The reduced shipments are reflected in the lower rates now prevailing for lake freights, and yet the aggregate lake shipments for the week were more than 4,000,000 bushels. Receipts at Atlantic points are a little less than the week before, but are really immense.

Of the receipts at Northwestern markets for the week, Chicago had 44.8 per cent.; St. Louis, 23.8; Toledo, 17.9; Peoria, 6.7; Cleveland, 2.3; Milwaukee, 2.2; Duluth, 1.7, and Detroit, 0.6 per cent.

Of the receipts at Atlantic ports, New York had 49.9 per cent.; Baltimore, 23.1; Philadelphia, 11.6; Boston, 6.6; Montreal, 5.4; New Orleans, 2.7, and Portland, 0.7 per cent.

The very large receipts at Baltimore are eight-ninths wheat, which indicates that it is receiving largely from the crops just harvested in the Ohio valley, through the whole length of which the Baltimore & Ohio Railroad has lines, and also the Pennsylvania, which delivers a great deal of grain at Baltimore.

For the week ending July 21 the receipts and shipments at Buffalo were:

	Receipts		Shipments	
	1880.	1879.	1880.	1879.
By water.....	2,909,970	1,320,669	2,071,730	1,236,407
By rail.....	1,131,400	1,027,600	2,097,300	1,945,500
Total.....	4,041,370	2,328,269	4,169,030	3,181,907

The rail receipts, it appears, were but 28 per cent. of the whole, but the rail shipments were larger even than the canal shipments. Since the opening of navigation (for the canal April 20 this year and May 8 last) Buffalo receipts and shipments have been:

	Receipts		Shipments	
	1880.	1879.	1880.	1879.
By water.....	47,061,307	19,619,120	27,541,308	13,817,683
By rail	12,059,450	9,468,100	20,337,498	12,132,975
Total.....	59,120,757	29,087,220	47,878,806	25,950,658

The average shipments *per day* have been 296,144 bushels by canal and 218,687 by rail—514,831 in all—this year, against 184,236 by canal and 161,779 by rail, or 346,005 in all, last year. Though the rail rates have been 50 to 100 per cent. higher this year, the average daily rail shipments have been 35 per cent. greater, while the canal shipments have been 61 per cent. greater.

For the week ending July 21 receipts and shipments at Chicago and Milwaukee were:

	Receipts		Shipments	
	1880.	1879.	1880.	1879.
Chicago.....	3,046,610	2,206,457	3,738,963	2,643,019
Milwaukee.....	155,605	198,200	250,390	253,100

For the calendar year to July 21 Chicago shows an increase of 12¾ per cent. in grain receipts and 29 per cent. in shipments; Milwaukee a *decrease* of 34 per cent. in receipts and 1⅞ per cent. in shipments.

Coal Movement.

Coal tonnages for the week ending July 17 are reported as follows:

	1880.	1879.	Decrease.	P. c.
Anthracite	393,340	557,823	164,483	29.5
Semi-bituminous.....	76,047	82,047	6,400	7.8
Bituminous, Penna.....	30,646	36,015	5,369	14.9
Coke, Penna.....	.....	30,660	.....	....

The anthracite trade is still dull, and the companies continue to run under the system of partial stoppages each week. It has been decided to continue working three days each week until September.

Southern Passenger War.

A dispatch from New Orleans, July 26, says: "The lively war progressing between the Chicago, St. Louis & New Orleans Railroad Company and the Louisville & Nashville Railroad Company has thus far resulted in a reduction of about 50 per cent. in passenger fares. The former now sell tickets to Louisville or Cincinnati and return at $19.50, and to Indianapolis, Nashville or Chattanooga and return at $20. The Louisville & Nashville sell tickets to Niagara Falls and return at $22.50.

Chicago Shipments Eastward.

The pool now reports shipments by the Grand Trunk as well as those by the other five lines. For the past four weeks the aggregate shipments have been:

Week ending...	July 3.	July 10.	July 17.	July 24.
Tons shipped.....	29,939	35,521	29,591	27,317

In the first of these weeks the Grand Trunk's shipments were not included; in the second it had 4,301 tons, or 12.1 per cent. of the whole; in the last week it had 1,358 tons, or 5 per cent. of the whole. In this last week the shipments of grain (which is the only important freight for which the lake vessels compete) were 56 per cent. of the whole, and the shipments of flour (which is carried by propellers to a considerable extent) were 10¾ per cent. more. The low lake rates of last week reduced rail shipments, but lake rates have already advanced, and it is not likely that they will be so low again this season. The new winter wheat crop is already beginning to come forward, and there is likely to be a good demand for vessels hereafter.

Petroleum.

Stowell's *Petroleum Reporter* gives the following statement for the Pennsylvania oil regions for June, in barrels of 42 gallons:

	1880.	1879.	Inc. or Dec.	P. c.
Production.....	2,036,910	1,675,650	I. 361,260	21.6
Shipments.....	975,083	1,369,314	D. 394,231	28.8
Stock, June 30	12,709,914	7,263,150	I. 5,446,704	75.0
No. of producing wells...	13,172	11,223	I. 1,949	34.8

The local pipe lines report receipts of 2,098,649 barrels, and deliveries of 1,046,272 barrels. The Tidewater Pipe Line reports 230,089 barrels run.

Pittsburgh receipts of crude were 9,854 barrels by Allegheny Valley Railroad, and 39,986 by pipe.

High Wines to be Weighed.

It having been reported that great quantities of high wines have been shipped from the West at less than actual weights, the Trunk Line Executive Committee gave notice July 22 that beginning with July 26 all shipments of high wines, spirits, whiskey and alcohol from Western points destined to points on or reached by the trunk lines shall *be weighed at destination*, and freight collected on the actual gross weight at the regular tariff rate from point of shipment to destination. The car-load rate will be charged for 24,000 lbs. or less, and quantities above 24,000 lbs. will be charged for.

THE SCRAP HEAP.

The Iron Market.

The *Iron Age* of last week reports at New York a considerable inquiry for steel rails, for earlier delivery than the manufacturers are able to supply, and reports a sale of 5,000 tons by the Troy mills at $56, to be delivered in New York, beginning in September. It quotes steel rails at $56 to $58 in New York, and iron rails $46 to $48.

The Philadelphia markets of the same journal report the market steady and prices firm for steel, with one or two sales for winter delivery below $60, which probably could not be duplicated so low. "For favorable deliveries $60 is still quoted, but most sales are at higher figures, and $62 to $64 has been realized during the week for early deliveries, and more business offered on the same terms. The mills are very full of work, however, so that the orders need to be of a desirable character to secure attention. Higher prices are quoted for English rails also, and the whole market seems to be hardening for all deliveries."

From Philadelphia the *Iron Age* reports sales of nearly 15,000 tons of iron during the week, and of 10,000 tons of English iron rails, the latter at about $43.50 at tide-water. American iron brought $44.50 to $45 at the mills.

Holders of old rails are firmer, and talk of asking $26 to $30 per ton, but $25 is the highest price at which actual sales are reported.

The *Iron Age* says editorially of the prospect for the demand for railroad material:

"Half a year has passed since, in the midst of an intense business excitement, numerous and conflicting statements were made, with some show of authority, in regard to the development of our railway system. Large crops and fair rates had brought to our railroads correspondingly ample revenues, while their expenditures for materials and labor had not increased in as rapid a ratio. The result was that much money was invested in improvements and repairs, creating a rush of orders for material, and naturally, also, a violent upward movement in the prices for the latter. The happenings of this period, its history, its causes and effects are still too fresh in the memory of those connected with the iron and kindred trades to need review. Nor is it likely that the severe lessons of the memorable "boom" will be soon forgotten by those who have suffered most severely from it. It is not reasonable to expect another boom, as the general conditions do not favor it. But when due allowance is made for altered conditions, it will be found that there is some similarity in the state of affairs now and nine months ago. It seems, however, that to a certain extent the errors of the last period of excitement are in danger of being repeated, and in this case chiefly by consumers. The precipitate action of the latter carried with it the whole of the iron and steel trade, and brought on that era of wild and general speculation, under the reaction of which we have been, and are still, suffering. That period was preceded by one of forced inactivity. Consumers were holding off in the hope of securing still greater advantages, and rushed into purchasing as soon as a stronger feeling became manifest. We are now passing such a spell of comparative quiet, and it is an important question before the trade whether it has any similarity with the times preceding the boom. We believe that, in a measure, it has. It should be again emphatically stated that the practice on the part of consumers of delaying purchases until prices begin to advance, is by far less general and much less obstinately adhered to than last year. Still it does appear to exist, and is an element of danger both to the producer and consumer. It is well known that our large stocks are being drawn upon to meet the demands of a large current consumption, but we question whether there has not been a disposition to delay necessary purchases to the last hour. The course of the iron markets seemed to warrant such a policy, but the situation does not appear to justify it at present. The position of the markets in England, which has been treated at length in the columns of *The Iron Age*, does not at present encourage it, and the business outlook in this country is still less calculated to favor further decline."

Government Contracts.

Proposals will be received by J. W. Barlow, Major of Engineers, until Aug. 5 at New London, Conn., for dredging in the harbors of New Haven, Bridgeport, Norwalk, Southport, and Milford, and in the Thames and Housatonic rivers; also for rip-rap granite for the New Haven breakwater and for the harbor of Port Jefferson, Long Island.

S. T. Abert, United States Civil Engineer, will receive proposals till Sept. 11, at his office at No. 1,907 Pennsylvania avenue, Washington, D. C., for dredging in the following rivers: 1. Mt. Vernon Channel, in the Potomac; 2. Breton Bay and Nomini Creek; 3. Urbana Creek (Rappahannock River); Chickahominy River; York River. Breton Bay is in Maryland, the others in Virginia.

Wm. P. Craighill, Major of Engineers, will receive proposals at No. 70 Saratoga street, Baltimore, till Aug. 2 for deepening the channel through certain bars found in the Appomatox River; and till Aug. 10 for deepening channels through certain shoals in James River between Richmond and City Point.

J. N. Macomb, Colonel of Engineers, will receive bids at

No. 1,619 Chestnut street, Philadelphia, until Aug. 5 for continuing the construction by dredging the channel through Cherry Island Flats, Delaware River; also for dredging Cohansey Creek at Bridgeton, N. J.; and also for the removal of rock from Schooner Ledge, Delaware River. Until Aug. 6 the same official will receive bids for dredging the channel near the mouth of Salem River, New Jersey; until Aug. 7 for the removal of shoals in Mispillion Creek, Delaware; until Aug. 17 for dredging the channel of the Delaware River near Petty's Island; until Aug. 18, for continuing the construction by dredging the channel through Mifflin Bar, Delaware River; and until Aug. 19 for dredging the Schuylkill River, in Pennsylvania.

In all these cases specifications and blank forms of proposals may be had at the office of the person who receives the bids.

OLD AND NEW ROADS.

Atlantic & North Carolina.—Four propositions for leasing this road have been received in all. They are:

1. From Appleton Oaksmith, representing the so-called Midland Route, for 40 years at $1,200,000 for the whole term, lessees to have the privilege of mortgaging the road for $15,000 per mile. This offer has somewhat uncertain backing.

2. From C. W. McLean, of Chicago, who offers $35,000 a year, term not fixed.

From R. R. Bridgers, President of the Wilmington & Weldon Company, who offers $33,000 a year for 2? years.

4. From W. P. Clyde, A. S. Buford and A. B. Andrews, representing the Richmond & Danville combination, who offer $30,000 a year for 21 years.

The road has not a very large business, but its control is of some value as affecting rates on a considerable local business.

Attica, Covington & Southern.—Local papers report that this company has concluded a contract with the Wabash, St. Louis & Pacific Company, under which this company is to grade and furnish ties for the proposed line along the Wabash & Erie Canal from Attica, Ind., southwest to Covington, about 16 miles. The Wabash Company will then furnish the rails to complete the road, and will work it as a branch.

Augusta & Knoxville.—A mortgage has been executed on the property of this company, and an issue of $530,000 in bonds will soon be offered for sale. It is expected that a large part of them will be taken in Augusta and along the line of the road.

Bergen County.—A new organization is reported of this company, which is to build the proposed Erie cut-off from Rutherford, N. J., to Ridgewood, 11 miles. Nothing new is reported as to the building of the line, but a new organization was necessary to keep the company alive under the general railroad law.

Berlin.—This road has been sold to the Baltimore & Ohio Company at a price said to be $26,000. It extends from Garrett, Pa., to the Pittsburgh Division of the Baltimore & Ohio, to Berlin, 812 miles. By the latest report the company had only $5,000 stock and no funded debt, the debt of the original corporation having been extinguished by foreclosure.

Chicago, Burlington & Kansas City.—This new company, as already noted, is organized to build a line from Burlington, Ia., to Kansas City. It is composed chiefly of holders of the bonds of the Burlington & Southwestern Company, and the intention is to buy in that road, which is soon to be sold under foreclosure. This will give the company a completed road from Burlington to Laclede, Mo., the crossing of the Hannibal & St. Joseph, a distance of 181 miles, leaving about 95 miles to be built, part of which is covered by an old grade, which the new company has secured. It is stated that arrangements have been made for all the money needed to build the line.

Chicago, Burlington & Quincy.—This company has nearly finished the work on its new terminal facilities in East St. Louis. These consist of a new brick freight depot 500 ft. long, with spacious offices and all the appliances for handling freight; extensive platforms, tracks, and yard room for some 1,500 cars, and accommodations for the loading of 800 cars at one time. To these will be added a round-house of 32 stalls, and water-tanks of 110,000 gallons capacity.

Chicago & Northwestern.—There has been much local speculation concerning the extension of this company's Toledo & Northwestern Division. It was built from the main line at Tama, Ia., northwest to a point about half-way between the main line and the Illinois Central's Iowa Division, and there turned west, parallel to the main line. It is now nearly finished to Callanan, the present northern terminus of the Des Moines Division, and further contracts are reported let, one for an extension due west and the other for a branch northwest to Webster City on the Illinois Central, and possibly beyond that point.

Chicago Park & Transfer Co.—The Chicago *Times* of July 18 says: "Matters in regard to the construction of a belt road around the city are still being pursued with vigor by the company organized for that purpose. Recently several new features have engaged the attention of the company, which will greatly increase its magnitude and importance. The original idea was to construct a new road around the city for the transfer of passengers and freight, with entrances to the centre, over roads already built, from the south, west and north, for the accommodation of city passengers, express and freight. An extensive canvass was made among the representatives of property along the proposed routes, which resulted in fair satisfaction to the originators of the enterprise. A majority of the land owners seemed to favor the building of the road and some five and a half miles of right of way contracts were signed and several additional miles were verbally promised, when the company had further advanced in its organization. At this point the local canvass temporarily closed, as overtures for the use of tracks already constructed had been made by existing lines and the prospects of forming a combination with other companies appeared bright. The new features above referred to were added upon the suggestion of Mr. George L. Dunlap, who is the chief factor in this new scheme. It was to operate a clearing-house in connection with the belt road to do business between the roads as the clearing-house does for the banks; also to do transferring business for the stock-yards company as well as to transfer the through freight and passengers. If this road were built from South Chicago around the city to Lake View, it would form seventeen junctions with the different lines entering the city, at each of which would be a depot and warehouse to receive all passengers, express, or freight destined from the west to the east, or *vice versa;* and at these junctions would also be received all stock consigned to the stock-yards; also, from them all articles would be transferred over the belt line to the connecting road, stock-yards, or other destination. * * *

"The Park & Transfer Company is the one managing these operations. It was incorporated last November, and its government is independent of all existing lines, although it will be operated in connection with them all. It is claimed that in this case the manufacturing interests of Chicago will be greatly increased, and much of the outside unavailable land brought into easy access. * * * The line has not yet been located, but it is safe to say that the most favored route is from South Chicago, over either a right-of-way owned by the Chicago & Western Indiana Railroad Company, or an adjoining strip held by the Rock Island & Pacific Company, to sections 5, 37, 14, thence west over a right-of-way controlled by the Grand Trunk Junction Company to the main track of the Chicago & Grand Trunk Company, thence north on the same to just back of Lawndale, thence by the most available route to be constructed to the cut-off of the Northwestern road at the car-shops, in Cicero, and to the old Chicago & Pacific track, by which an independent entrance to the city, by way of Goose Island, would be secured as far as Chicago avenue, on the north side. If this route is selected, the Goose Island track could be extended down Kingsbury to Kinzie street, thus making a passenger route for the Humboldt Park and Maplewood vicinities. It would aggregate some 30 miles of road, of which about 20 is already constructed and operated on a small scale."

Chicago, St. Paul, Minneapolis & Omaha.—The difference between this line and the Union Pacific as to the 43 miles of road in Nebraska between Vincent Junction and Norfolk, has been settled by mutual agreement. This section of road will be built by this company, but will be owned and used by both companies. This line will give the Union Pacific a new connection with Sioux City.

Cincinnati, Wabash & Michigan.—A considerable amount of stock has been subscribed for the extension of this road northward. It is said that work will soon be begun between Elkhart, Ind., and the Michigan state line.

Connecticut Western.—The equipment which was levied on in New York lately at suit of A. C. Trompbour, has all been replevined by the Trustee, who is now in possession of the road. To satisfy this Trompbour judgment, the company's interest in a tract of 36 acres at the terminus in Millerton, N. Y., was recently sold by the sheriff. It was bought in the interest of the road.

Danville, Olney & Ohio River.—The track on this road is now laid to the Embarrass River, 20 miles southward from the late terminus at Casey, Ill., and 38 miles from the northern terminus at Kansas. Work is progressing on the grading to Olney on the Ohio & Mississippi, and track-laying will be resumed as soon as the bridge over the Embarrass is finished.

Detroit, Butler & St. Louis.—The Lake Shore & Michigan Southern Company has been laying sidings at the point where the new road proposes crossing its tracks at Adrian, Mich., and apparently means to obstruct the crossing in every possible way. A temporary injunction has already been secured against the crossing.

Greenville & Columbia.—The application of the purchasers of this road to have the sum of $2,393,000 accepted as the highest legal bid for the road at the late sale was argued before the South Carolina Court of Common Pleas at Columbia, July 22. The Master's report stated that he had closed the sale, but immediately opened it again and received several higher bids, running up to $2,963,400, at which it was declared sold to the same persons who made the lower bid. An effort was made to compromise the matter, but it failed, and the Court finally ordered that, to bring the matter properly before it, the purchasers must file a bill of exceptions to the Master's report.

On July 24, after reviewing the exceptions filed to the Master's report, the Court made an order allowing the petitioners, and all parties excepting to the Master's report of sale, until Aug. 10 to hand in their testimony before the Master; that parties opposing these exceptions shall have four days to put in their testimony, and that 24 hours be then allowed the petitioners to file a reply. The final hearing will be had in Columbia Aug. 18.

Houston & Texas Central.—Surveys are being made for a branch from a point north of Hearne, Tex., to Belton, Lampasas and San Saba. Several lines will be run and the country thoroughly prospected before the branch is finally located or work begun.

Hudson Tunnel Railroad—But little is to be added to the account given last week of the accident in the tunnel workings at Jersey City. The tunnel and shaft are still full of water, so that it is impossible to say in what condition the works are or how much damage has been done. The pumps used have not been able to reduce the water, and it has been decided that a coffer dam must be built before the shaft can be pumped out. Work on this coffer dam has been begun and will probably be finished next week.

Kansas City, Ft. Scott & Gulf.—The trustees under the first mortgage give notice that they have $569,000 in their possession for the purchase of bonds in accordance with the terms of the mortgage. They will receive proposals at their office, No. 21 Sears Building, Boston, until Aug. 9, for the sale to them of bonds to the extent of said fund, at a price not to exceed 110 flat. The proposals will be opened in Boston, Aug. 10, and the accepted proposals declared. Bonds to be delivered to the trustees and paid for Aug. 10, 1880.

The trustees think it proper to inform bondholders that a question has arisen as to the rate to be paid for any bonds which may be drawn by lot, if the whole of the above amount is not offered at or under 110 flat.

Kansas City, St. Joseph & Council Bluffs.—A special meeting was held in St. Joseph, Mo., July 12, at which the leases of the Nodaway Valley and the Tarkio Valley roads by this company were formally ratified. The agreements were made some months ago, and both roads are now under construction.

The Chicago, Burlington & Quincy Company will formally assume control of this road on August 1.

Louisiana Western.—Work is now well advanced on the bridge over the Mermenteau River, and it will probably be finished by the middle of August, by which time it is expected that the track will all be down. The rails are now laid for 25 miles westward from Vermillionville, La., leaving only about 10 miles to complete the road, which is all ready for use from Orange, Tex., eastward to the Mermenteau, 66 miles.

Manchester & Keene.—In April last the New Hampshire Supreme Court appointed George O. Ramsdell Receiver of this road, pending the legal controversy between the corporation and the Nashua & Lowell Railroad Company. He was authorized to expend money, to be furnished by the original petitioners in equity, to put the road in a condition to be operated. The receiver having discharged these duties, these petitioners now ask that authority be granted him to contract with responsible parties to open and run the road, and a hearing was had July 27 before Chief Justice Doe. The Nashua & Lowell Company claims the right to operate the lower end of the road, but the Court gave it until Aug. 9 to determine whether it will operate the whole line. If not, some other arrangement will be authorized, by which the public will be accommodated until legal questions now pending are fully determined.

Manhattan Elevated.—It is stated that this company, the Metropolitan and the New York Elevated have finally settled upon a basis of agreement for the proposed consolidation of the three companies. The point upon which it was not possible to come to a settlement was the value at which the stocks of the three companies should be put into the consolidation. It was finally decided to leave the matter to arbitration, the arbitrators to be the Presidents of five New York trust companies—Messrs. John A. Stewart, of the United States Trust; Henry Parrish, of the New York Life Insurance & Trust; R. G. Rolston, of the Farmers' Loan & Trust; Edward King, of the Union Trust, and Henry F. Spaulding, of the Central Trust Company. This agreement has been formally accepted by the boards of the Manhattan, the Metropolitan, and the New York companies.

Memphis & Charleston.—Negotiations have recently been in progress for some modification of the lease under which this road uses 38 miles of the Nashville, Chattanooga & St. Louis track from Stevenson, Ala., to Chattanooga, Tenn. The present lease has eight years to run yet, but some changes are desired in the limitations imposed by it on this company's trains.

Missouri Pacific.—Dispatches from Kansas City state that agreements have been concluded for the consolidation with this company of its leased and controlled branches, the St. Louis & Lexington, the Kansas City & Eastern, the Missouri River and the Leavenworth, Atchison & Northwestern. Meetings to ratify these agreements will be called shortly. The dispatches state that the stock will be increased and a consolidated mortgage executed to cover all the obligations of the companies.

Montreal Tunnel & South Shore Railroad.—The Quebec Parliament has passed the bill to incorporate this company, which proposes to build a tunnel under the St. Lawrence at Montreal, giving that city a connection with the south bank of the St. Lawrence independent of the Grand Trunk. The bill was strongly opposed, and passed only after a long fight.

Nashville & Tuscaloosa.—The stockholders of this company have approved a contract under which the road is to be conveyed to the Nashville, Chattanooga & St. Louis, on condition that that company completes at once the extension from the present terminus to Duck River, at Centreville.

Nashville, Chattanooga & St. Louis.—Rails are to be laid on the extension of the McMinnville & Manchester Branch from McMinnville, Tenn., to Collins River, three miles. As soon as the bridge over Collins River is finished the extension will be pushed to Caney Fork.

New Bonds.—Additional issues of bonds have lately been put on the market as follows:

The *Wabash, St. Louis & Pacific* offers, through Gilman, Son & Co., of New York, first mortgage bonds secured on its Quincy, Missouri & Pacific Branch at the rate of $9,000 per mile. They are 6 per cent. bonds, and are offered at 95 and accrued interest.

The *Lake Erie & Western* Company offers, through Walston H. Brown & Brothers, of New York, its first-mortgage 6 per cent. bonds, secured on the extension from Fremont, O., to Sandusky, 22 miles, now under construction. The total issue authorized is $327,000, or $14,869 per mile.

New York & New England.—This company is about to build a new passenger station in Boston, to replace the present cramped and insufficient building. It will have a head-house, 70 by 102 feet, and a train-house in the rear, about 400 feet long. It will be a neat and convenient but not very expensive building, judging from the descriptions given.

New York, Ontario & Western.—July 22 was the last day upon which the old stock of the New York & Oswego Midland Railroad Company, and its convertible bonds, could be exchanged for the stock of this company by the payment of an assessment of 30 per cent. in cash. Payments amounting to $1,816,350 were received on account of the 30 per cent. assessment, and then an injunction was served on the company, obtained on a petition by Mr. H. R. Low, of Middletown, restraining the officers from issuing any stock at less than $30 a share, or the issuing of an amount greater than $50,000,000, which is the present capital of the company. The object of the injunction is supposed to be to prevent the New York, Ontario & Western from taking advantage of a law passed by the last Legislature, permitting an increase of their capital stock from $50,000,000 to $65,000,000. After the injunction had been served, $388,500 was tendered on the 30 per cent. assessment account and was refused. From the $20 assessments previously paid by the securities taking precedence of the old stock and convertible bonds, there had been received $7,553,463, making a total of $9,672,558 paid in to date.

Ohio & West Virginia.—A petition has been filed in the Court of Common Pleas at Columbus, O., to set aside the sale of the property of the Columbus & Gallipolis Company and its subsequent transfer to this company. The petition is filed by Albert E. Cuppen and charges fraud and irregularity in the foreclosure, and also a fraudulent issue of bonds to the contractors, enabling them to secure control of the road. The old company had graded part of the road, but laid no track. The present company has now nearly completed it from Logan, O., to Gallipolis.

The parties of tracklayers working north and south met July 28, completing the road. A few miles are still to be ballasted, and it will not be opened for traffic until Aug. 10. The road is about 60 miles long, from Logan, O., to Gallipolis, on the Ohio River, and runs through a country heretofore without railroad facilities, though much of it is rich in coal and iron. The road is controlled by the Columbus & Hocking Valley, with whose line it connects at Logan.

Pennsylvania.—This company's statement for June shows for all lines east of Pittsburgh and Erie, as compared with June of last year:

An increase in gross earnings of (34.7 per cent.)	$830,666
An increase in expenses of (23.4 per cent.)	419,413
Net increase (68.4 per cent.)	$411,253

For the six months ending June 30, as compared with the corresponding period in 1879, the same lines show:

An increase in gross earnings of (26.1 per cent.)	$4,020,013
An increase in expenses of (18.5 per cent.)	1,771,460
Net increase (38.5 per cent.)	$2,248,553

For the six months of this year all lines west of Pittsburgh and Erie show a surplus over all liabilities of $1,311,136, being a gain of $1,730,473 over the corresponding period last year.

In accordance with the action usually taken in the year of a presidential election, the board, on June 30, passed the following:

"*Whereas*, It has been the avowed policy of this company

since its organization to keep aloof from all political contests, and to discountenance any active participation of its officers and employés therein;

"*Resolved*, That while disclaiming any desire to interfere with the individual rights of our officers, agents or employés in the exercise of the rights of suffrage, we will regard any attempt on their part to control the votes of those in the service of this company, or to prevent their influence to the support of any political party as a direct violation of the standing rules and regulations, and inconsistent with the interests of this company."

The new station at Camden, N. J., is now nearly finished and will soon be opened to the public. It will be used by the trains of the Amboy Division and also by those of the West Jersey Railroad. The station is 160 by 60 feet, containing waiting-rooms, ticket office, baggage-rooms, etc., and the train-house at the rear of the station proper is 402 feet long with eight tracks and five platforms running the whole length of the house. There is besides a siding and office adjoining the train-house, which will be used for the milk trains. There are now 128 passenger trains arriving at and leaving Camden every day on the Amboy Division and the West Jersey road.

It is understood that the proposed branch from Port Perry, Pa., to McKeesport has been given up. The engineers could not find any line which could be built at a moderate expense, and the advantages to be gained were not sufficient to warrant a sufficient outlay.

Philadelphia & Reading.—The Receivers' report for June and the seven months of the fiscal year from Dec. 1 to June 30 is as follows:

	June.		Seven months.	
Gross receipts:	1880.	1879.	1880.	1879.
Railroad traffic	$1,288,168	$1,179,141	$8,910,089	$6,738,323
Canal traffic	69,024	93,076	317,178	358,750
Steam colliers	34,866	50,815	350,218	394,923
Richmond barges	6,478	19,982	54,570	84,328
Total R. R. Co.	$1,398,536	$1,343,014	$9,632,055	$7,576,324
Coal & Iron Co.	756,657	1,047,683	6,010,986	5,232,383
Total	$2,155,193	$2,390,697	$15,643,041	$12,808,707
Traffic:				
Passengers carried	868,390	761,063	5,317,360	3,905,019
Tons merchandise	476,442	437,897	3,456,652	2,290,159
Tons coal	559,764	745,711	3,767,724	4,234,715
Tons coal on colliers	38,489	48,818	303,534	340,292
Tons coal carried:				
By coal & Iron Co.	266,599	398,195	1,809,818	2,195,494
By tenants	95,028	108,442	615,137	664,656
Total	361,627	506,637	2,424,955	2,860,150

The Railroad Company shows an increase of 4.1 per cent. in June, but the Coal and Iron Company's receipts fell off 27.8 per cent., making a decrease of 9.9 per cent. for the two companies. This decrease is apparently due altogether to the smaller coal business, as the other classes of traffic show a gain. It must be remembered that June is the first full month of 1879, in which the receipts of the North Pennsylvania and the Delaware & Bound Brook lines appear. The Receivers' supplementary statement is as follows, rentals being included in gross expenses:

	June.		Seven months.	
Railroad Co.:	1880.	1879.	1880.	1879.
Gross receipts	$1,398,536	$1,343,014	$9,632,055	$7,576,324
Gross expenses	1,025,753	990,594	7,489,506	5,764,415
Net profit	$372,783	$352,420	$2,142,549	$1,811,909
Coal & Iron Co.:				
Gross receipts	756,657	1,047,683	6,010,986	5,232,383
Gross expenses	685,490	1,192,888	6,104,017	5,704,750
Net loss	$71,167*	$145,205	$93,031	$472,367
Total net, both companies	$443,950	$207,215	$2,049,518	$1,339,542

* Profit.

Here for June the net earnings of the Railroad Company show a gain of 5.8 per cent.; the Coal and Iron Company changes from a loss of $145,205 to a profit of $71,167, the net results for the two companies being a gain of 104.2 per cent. For the seven months the net profits of the Railroad Company show an increase of 18.2 per cent., and those of both companies an increase of 53.0 per cent.

A movement is reported among the Philadelphia stockholders to bring a suit against the directors of the company to recover the amount of certain dividends paid. It is claimed that under a Pennsylvania law directors who declare a dividend not actually earned can be held personally liable for the amount so paid out, and it is understood that there is a disposition to test this law. Two years ago ex-President Charles E. Smith made a statement in which he charged that from 1871 to 1876 the dividends paid were over $15,000,000 in excess of the actual net earnings. The suit, if brought, will probably be based on that statement, and will include all who were directors during those five years. Most of them are wealthy men.

Rutland.—A plan has been prepared for submission to the stockholders at their annual meeting this week which provides for the settlement of the floating debt. The liabilities of the company, by the last report, were $2,546,400 bonds, $104,200 equipment bonds, and $455,541.42 floating debt. The available yearly income is $312,000 rent from the Central Vermont Company and some $10,000 from rents and interest, and the available assets as follows: first mortgage bonds unsold, par value, $162,900; new 5 per cent. bonds, par value, $513,200; Addison Railroad stock, par value, $332,800; rents due and cash on hand, $27,795.36; real estate, $115,925.87, at cash value, $30,000.

The proposition for funding the debt, to meet all liabilities other than mortgage bonds, is: First, to exchange new 5 per cent. bonds, at par, for the remaining outstanding equipment bonds, dividend, scrip and interest, $188,599.32; second, to make the following sales: $161,000 first mortgage 6 per cent. bonds at par; $281,750 new 5 per cent. bonds at 60, and $80,500 Addison Railroad stock (guaranteed 3 per cent.) to be given as a bonus with the above bonds, at the rate of $500 stock with $1,000 first mortgage bond, and $1,750 new 5 per cent. bonds, the whole amounting to $330,050; third, to use the cash assets ($27,795.36) on hand July 1, 1879, and a portion of surplus earnings of the past year, or $24,601.04, aggregating $52,390.40. If the foregoing proposition is carried out, the liabilities will be a total debt averaging $35,000 per mile on 120 miles of road, or $3,000,000.

The annual charges will then be as follows:

Interest on $1,500,000 6 per cent. bonds	$90,000.00
Interest on $1,457,150 5 per cent. bonds	72,857.00
Dividend 3 per cent. on $247,700 Addison Railroad stock	7,431.00
Taxes and general expenses	15,000.00
Total	$185,288.00

If this plan were carried out, it is claimed that the company would still retain as assets the real estate valued at $30,000, new 5 per cent. bonds to the amount of $42,850, and $252,300 (a controlling interest) of the Addison stock. There would then be, after paying all charges as above, a balance left to pay dividends on the stock, of which there is $2,480,000 common, and $4,000,000 preferred.

Seaboard & Roanoke.—The first mortgage bonds which mature Aug. 1 will be paid on that date, with all accrued interest, at the Farmers' & Planters' Bank in Baltimore. The amount of these bonds is $210,000, and they constitute the entire funded debt of the company.

Sparta & Lake Superior.—This company has filed articles of incorporation in Wisconsin to build a railroad from Sparta, Wis., on the La Crosse Division of the Chicago, Milwaukee & St. Paul, north by east to Ontonagon, Mich., on Lake Superior, a distance of about 220 miles. The proposed line crosses the Wisconsin Central, and must, for some distance, run nearly parallel to the northern part of that road.

Vernon, Greensburg & Rushville.—The grading of this road is nearly all completed from North Vernon, Ind., to Greensburg, 25 miles, and track-laying has been begun. A contract for the 20 miles from Greensburg north to Rushville has been let to Col. Horace Scott, who is building the southern section.

Wabash, St. Louis & Pacific.—The opening of this company's line to Chicago for passenger business has again been postponed, and it is still uncertain when regular trains will be put on.

Western Union Telegraph.—A dispatch from Topeka, Kan., July 27, says: "Judge McCrary to-day filed an opinion in the case of the Western Union Telegraph Company against the Kansas Pacific Railway Company and others on the amended bill of the Western Union Company recently argued before him at Keokuk, Iowa. He holds in favor of the Western Union Company on every point. He decides that the rights of the Western Union Telegraph Co., attached by virtue of the act of Congress of 1864, authorizing the contract of the railroad company with the United States Telegraph Company, and that the property accumulated by the Western Union Telegraph Company was therefore entitled to judicial protection, and could not be seized by force and without warrant of law by the railroad company. This disposes of the matter, as far as the United States Circuit Court is concerned, and covers every question of law which can possibly arise affecting the right of the Western Union Company to a complete and immediate restoration of their property in this particular case."

ANNUAL REPORTS.

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Missouri Pacific.

This company owns a line from St. Louis to the Kansas state line at Kansas City, 283.33 miles, with a branch from Kirkwood to Carondelet, 11.25 miles. It leases the Missouri River road, which extends the main line to Leavenworth, Kan., 25.25 miles; the Leavenworth, Atchison & Northwestern, which extends it to Atchison, 21.50 miles further; the Osage Valley & Southern Kansas, a branch from Tipton, Mo., to Boonville, 25 miles, and the St. Louis & Lexington, from Sedalia, Mo., to Lexington, 55.25 miles. In all there are 294.58 miles owned, 127 leased, and 421.58 miles worked. The report is for the year ending Dec. 31, 1879.

The equipment consists of 107 engines; 54 passenger and 23 baggage, mail and express cars; 1,521 box, 399 stock, 507 flat and 55 caboose cars; 2 officers' and 14 service cars.

The general account is as follows:

Stock ($2,716 per mile)		$800,000.00
Bonds ($51,337 per mile)		15,123,000.00
Sundry accounts		333,653.59
Interest accrued		342,316.65
Profit and loss		1,560,322.59
Total		$18,159,292.83
Road and property ($53,025 per mile)	$15,885,225.46	
Stocks and bonds	603,523.69	
Materials on hand	106,298.77	
Current accounts	272,915.88	
Cash	1,291,329.03	
		18,159,292.83

The funded debt consists of $7,000,000 first-mortgage bonds; $2,573,000 second-mortgage bonds; $800,000 real estate bonds; $4,500,000 third-mortgage bonds, and $250,000 Carondelet Branch bonds. The yearly interest charge on this debt is $994,130.

The traffic for the year was as follows:

Train-mileage, passenger	686,640
" " freight	1,954,902
Total	2,641,542
Total locomotive mileage	2,732,412
Passengers carried	896,401
Passenger mileage	40,020,233
Tons freight carried	1,893,657
Tonnage mileage	219,885,868
Average passenger train load, number	58.28
Average freight train load, tons	112.48
Average rate per passenger per mile	2.50 cts.
Average rate per ton per mile	1.19 "

The earnings for the year were as follows:

Passengers		$1,000,080.10
Freight		2,624,524.19
Mail and express		195,217.12
Miscellaneous		103,071.95
Total ($9,300.46 per mile)		$3,922,893.36
Expenses (54.52 per cent.)		2,139,159.15
Net earnings ($4,226.31 per mile)		$1,783,734.21
Interest on bonds	$994,110.00	
Rent of leased lines	145,694.12	
Other payments	23,728.43	
		$1,163,532.55
Balance, surplus		$620,201.66

Owing to the very peculiar capital account of this company, this surplus was no less than 77.5 per cent. on the stock. No statement of the disposition made of it is given.

No comparisons can be made, as the company published no report for 1878.

Atlanta & West Point.

This company works a line from Atlanta, Ga., to West Point, 87 miles, of which it owns 81 miles and leases 6 miles, from Atlanta to East Point, from the Central of Georgia and Georgia railroads. Its report is for the year ending June 30, 1880.

The equipment consists of 14 engines; 7 passenger and 4 baggage, mail and express cars; 113 box, 18 stock, 20 platform, 13 coal and 5 cab cars.

The stock and bonds are as follows:

Stock ($15,212 per mile)	$1,232,200
Bonds ($1,025 per mile)	83,000
Total ($16,237 per mile)	$1,315,200

The very small debt and the light cost of road have enabled the company to continue paying regular dividends.

The traffic reported for the year is as follows:

	1879-80.	1878-79.	Increase.	P.c.
Passengers carried	39,662			
Bales cotton carried	88,863	73,491	15,372	20.9
Total tons freight	99,604	74,885	24,719	33.0

Of the cotton carried last year 50,731 bales were local and 38,132 bales through; the through cotton showed a much larger increase than the local. The earnings for the year were as follows:

	1879-80.	1878-79.	Inc. or Dec.	P.c.
Passage	$110,592.39	$97,580.24	I. $13,012.15	13 3
Freight	220,215.43	202,487.96	I. 17,727.47	8.8
Mails, etc	37,322.75	30,194.74	I. 7,128.01	23.6
Total	$368,130.57	$330,262.94	I. $37,867.63	11.5
Expenses	214,801.56	206,892.30	I. 7,909.26	3.8
Total	$153,329.01	$123,370.64	I. $29,958.37	24.3
Gross earn. per mile	4,231.39	3,796.13	I. 435.26	11.5
Net earn. per mile	1,762.40	1,418.05	I. 344.35	24.3
Per cent. of exps.	58.35	62.64	D. 4.29	6.8

Expenses include $6,000 for rental of Georgia and Central tracks, and about $12,000 for betterments to the property. During the year steel rails have been substituted for most of the old light iron, and there are now 23 miles of steel track. Some ballasting was also done. Three old light engines were broken up and one sold, while two heavier freight engines were bought. A number of cars were added.

A second fast passenger train was run during the year, but has hardly paid. The business has been good and the improvement promises to continue.

Superintendent L. P. Grant's report says: "Your property is now virtually in the hands of the State Railroad Commission. The officers and directors of the company have now no voice in making local rates for passengers and freights—except a small discretion on a few immaterial items. As more than three-fourths of our net revenue is derived from local business, the power of the Commission over your property can be readily understood.

"We have worked the standard rates, established by the commission, during the past months of May and June, and find the average reduction, from our former local freight rates to be 31 per cent. If we are held to the same rates during the ensuing fiscal year, our net revenue will be so greatly reduced that we must suspend needed improvements, or the shareholders accept small dividends.

"The rates on cotton, fixed by the commission, if not modified, will disturb the heretofore settled trade of our local stations—drawing to Newnan an undue proportion, to the detriment of stations north and south of it.

"The change of ownership and management of our connections south and west of Montgomery, has led me to apprehend some diversion of the long travel we have heretofore carried between the Gulf and Atlantic cities. With the superior inducements of solid trains between New Orleans and Louisville, that route will doubtless attract some travel from us. The shorter line will, I think, continue to hold a reasonable share of the business, unless the policy of obstruction should be resorted to by our competitor."

The usual dividends (8 per cent.) were paid. President King takes a more encouraging view of the Commission; he says: "The Superintendent and others at one time felt strong apprehensions of the disastrous effects of the railroad commission law if it should be rigidly enforced upon the railroad interest subject to its operations. It is believed, however, that a better understanding of the purposes and intentions of the Commission has greatly relieved the apprehensions upon the subject. It is believed that the law was intended to be conservative and not destructive in its application. It was calculated, and it is hoped intended, to relieve this large and important item in the productive wealth of the nation from a constant menace of destruction by a wasteful or malicious rivalry, rather than to guard against extortion, of which there is no danger under a free and wholesome competition. The railroad interest is a very large interest, and constitutes an important share of the productive national wealth, and to destroy or materially cripple it would be felt as a calamity in every section and by every business interest in the country.

"No one doubts the intelligence or the pure and honest intentions of the worthy commissioners, but how equal justice can be administered among corporations so differently situated with resources so unequal by any law of common application is not easily perceived. Perseverance and honest purposes, however, may do something to modify and mitigate an acknowledged evil which, perhaps, can't be cured."